

# MINNESOTA MEDICINE

*Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society*

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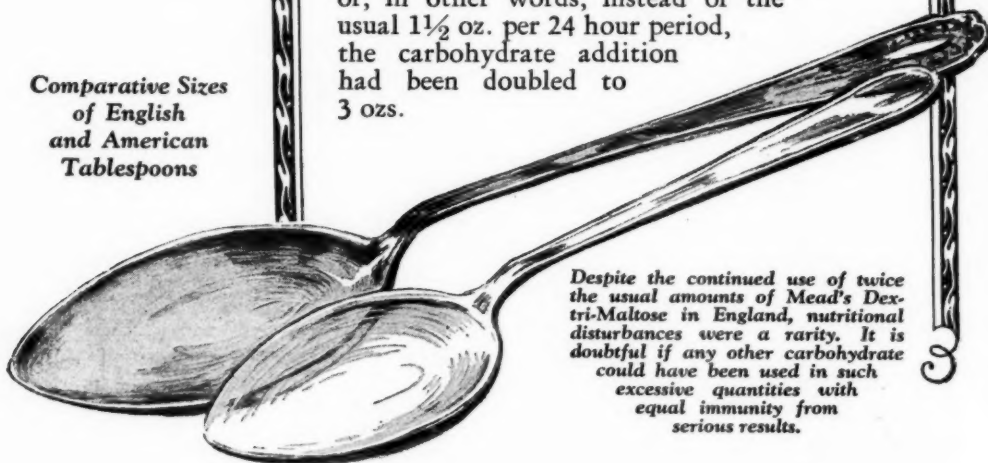
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# MINNESOTA MEDICINE

*Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society.*

VOL. XI.

AUGUST, 1928

No. 8

## DISLOCATIONS AND SIMPLE FRACTURES OF THE ELBOW

EMIL S. GEIST, M.D., and MYRON O. HENRY, M.D.  
*Minneapolis*

THE excellent books of Cotton, and of Wilson and Cochrane, leave little of these common lesions to be described. However, it was thought not to be without interest to study one hundred and fifty consecutive cases of elbow fracture and dislocation as they appeared in the private practice of orthopedic surgery; to analyze these, and to divide them into their various types. As far as we know there exists no statement of figures as to percentage of occurrence.

In this study the questions of prognosis and treatment will only receive a few lines. This part of the subject is well covered in the above mentioned textbooks. It may be remarked here, however, that treatment should never be begun until an accurate diagnosis, based on the study of many x-ray plates, has been made. This presupposes a knowledge of the development of the epiphyses of the elbow. It always pays to make comparison pictures of the uninjured elbow when lesions of this joint are studied.

Elbow injury occurs at all ages. The youngest case in this series was four months old; the oldest seventy-seven years.

Tabulation of the cases according to age of the patient at the time of injury yields the following:

Age in years (inclusive)	Cases	Percentage
0 to 5 .....	30	20
6 to 10 .....	31	20.3
11 to 15 .....	20	13.33
16 to 20 .....	11	7.33
21 to 30 .....	30	20
31 to 40 .....	12	8
41 to 50 .....	9	6
51 to 60 .....	4	2.5
61 to 70 .....	2	1.3
71 to 80 .....	1	.6

It will be noted that in approximately 54 per

cent of these cases the injury occurred before the sixteenth year of life. Also that 20 per cent occurred during the most active period of life (21 to 30 years, inclusive).

The manner of injury was as follows (as nearly as could be ascertained):

- (a) Falls—110 cases. Of these there was direct injury (striking elbow) in 72 cases; indirect injury (falls on extended hand) in 38 cases.
- (b) Automobile accidents—23 cases.
- (c) Miscellaneous—17 cases.

These cases can be divided into "fresh" and "old" cases. The "fresh" cases can be divided as follows:

Seen on day of injury.....	7
Seen in first week of injury.....	25
Seen in second, third and fourth week of injury .....	36

The "old" cases were seen as follows:

1 month to 2 months.....	25
2 months to 1 year.....	36
1 year to 5 years.....	10
5 years to 10 years.....	2
10 years to 20 years.....	8
20 years to 25 years.....	1

The types of fracture and dislocation are divided in this series as follows:

### Dislocations—

	Cases	Percentage
Backward .....	9	6
Backward dislocations with fractures .....	5	3.4
Internal lateral .....	2	1.4
External lateral .....	1	0.7
Dislocation of head of radius.....	3	2.0

*Fractures—*

	Cases	Percentage
External condyle .....	22	14.7
Internal condyle .....	11	7.3
External epicondyle .....	7	4.7
Internal epicondyle .....	4	2.7
Intercondyloid T-fracture .....	5	3.3
Supra-condylar .....	27	18.0
Dia-condylar .....	16	10.7
Fracture head of radius.....	16	10.7
Fracture coronoid process.....	2	1.3
Fracture olecranon.....	11	7.3
"Explosive" fracture.....	9	6.0

*Backward Dislocation—9 cases—6 per cent (Fig. 1).*

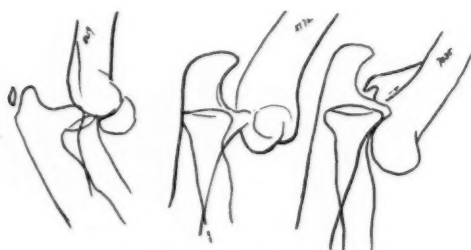


Fig. 1. Backward dislocation.

This is the most common type. It is easy to diagnose. Nevertheless, even in this day of the x-ray, the diagnosis is sometimes not made, for in this series of nine cases four were old, unrecognized, and unreduced dislocations. It may be said that an old unreduced dislocation presents a formidable surgical problem and that open operative surgery does not usually yield perfectly functioning elbows. On the other hand, early recognition and reposition, under general or local anesthesia, is easy and in such cases the prognosis is excellent.

*Backward dislocation with fracture—5 cases—3.4 per cent*

The fracture complication of the backward dislocations were as follows:

External condyle .....	22 cases
Head of radius.....	2 cases
Coronoid process .....	1 case

Following early reduction of the dislocation, the treatment of the fracture, to be discussed later, becomes the chief concern. It must be remembered that prognosis in these cases is to be guarded, there having occurred much ligamentous tearing in addition to the fractures.

*Internal lateral dislocation—2 cases—1.4 per cent.*

This is a rare injury. Two cases were seen and reduction was easy. In both cases the luxation was incomplete. After reduction was accomplished, the after-treatment was as usual, and the end-result in each case was good.

*External lateral dislocation—1 case—0.7 per cent (Fig. 2).*

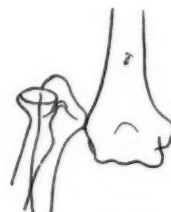


Fig. 2. External dislocation.

Another rare injury. In this case (75 year old woman) reduction (under local anesthesia) was easy. After-treatment consisted of early motion and heat. The end-result was a perfect elbow.

*Dislocation of head of radius—3 cases—2 per cent (Fig. 3).*

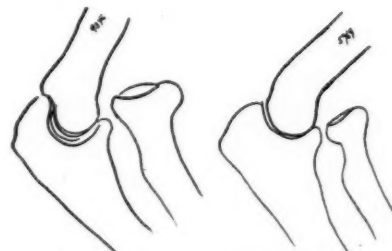


Fig. 3. Dislocation head of radius.

This dislocation is not infrequent. Those in this series are all traumatic cases although it should be remembered that there exists a congenital type of this lesion which is not so very uncommon. The congenital dislocation is apt to be bilateral. The chief complaint of the patient is some soreness and inability to flex the arm. This is because the radial head impinges on the anterior humeral surface during flexion. Some fresh cases have been cured, by others, by making a new orbicular ligament from fascial transplant. In the cases of this series, relief and increase in range of flexion was obtained by means of resection of the radial head.

*Anterior Dislocation.*

We have never seen a case of this rare condition (Fig. 4).



*Divergent Dislocation.*

This also is an extremely infrequent type of injury which does not appear in this series. Only a few cases are reported (Fig. 5).

There exists an elbow condition which is rather frequent and which should be mentioned in connection with dislocation of the radial head and which occurs only in children. It is called

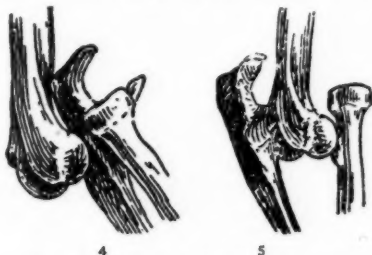


Fig. 4. Anterior dislocation (from Cotton).  
Fig. 5. Divergent dislocation (from Cotton).

"pulled elbow," or "Malgaigne's Luxation." Its pathology is not known, the most probable theory being that "the radial head is pulled part way down through the orbicular ligament and jammed there" (Cotton). The injury is caused by a sudden pull on the child's extended arm. We have seen three cases in as many years (these not included in this study). The x-ray discloses nothing. The "dislocation," if such it is, is reduced under an anesthetic; a sharp "click" being sometimes noted at the time of manipulation. Supination which was impeded before manipulation becomes again normal and as a rule the child uses the arm freely after a few hours. Prognosis is invariably good.

Not much need be said of the treatment of dislocations. Early diagnosis and reposition are of immense importance. A case rapidly becomes an "old" one. Some cases can become "irreducible" at three and four weeks and necessitate open surgical interference. The prognosis in cases where reduction is delayed is always poorer than in fresh cases. Cases of dislocated elbow are too frequently "missed"; always because the x-ray was not used.

*Fractures at and near the elbow.*

There is not much difference in types of fractures in children as compared with adults. The presence of epiphyseal lines and epiphyseal growth areas somewhat complicate accurate x-ray diagnosis in children. The other chief difference between the child and the adult con-

sists in the fact that in children the prognosis is much better. Pure epiphyseal separations are infrequent. There exists some broken bone in nearly every case.

The 130 cases of fracture in this series were divided as follows:

	Cases	Percentage
Lower end of humerus.....	92	61.4
Upper end of radius.....	16	10.72
Upper end of ulna.....	13	8.6
"Explosive" fractures.....	9	6

Diagnosis of fracture of the lower end of the humerus is easy with the x-ray. Treatment must be individualized in each case. The general rules for treatment can be summarized in the words anesthetic, reduction, splinting, flexion, early manipulation and use. It would not do to omit the name of Sir Robert Jones in this connection for it was he who popularized flexion treatment in elbow fractures.

*Supracondylar fractures*—27 cases—18 per cent (Fig. 6).

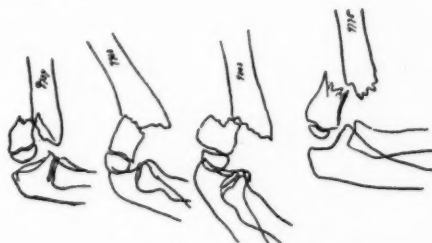


Fig. 6. Supra-condylar fracture.

This is an extra-articular fracture, and it is the most common in the vicinity of the elbow. Its diagnosis is easy.

*Dia-condylar fractures*—16 cases—10.7 per cent (Fig. 7).

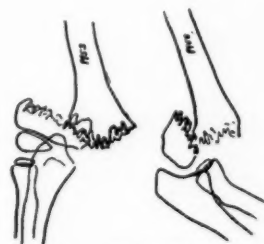


Fig. 7. Dia-condylar fracture.

It is necessary to remember that this is an intra-articular lesion; therefore, accurate apposition and early motion are very important.

*Fractures of the external condyle*—22 cases—14.7 per cent (Fig. 8).

In "setting" these, care must be taken that the "carrying angle" of the elbow is not increased or lost. These fractures occasionally do not unite. Three of this series were ununited and the loose fragment caused pain and discomfort for years. The removal of the fragment gave relief. Cotton advises attempting to obtain union by open operation and reports six successful cases.

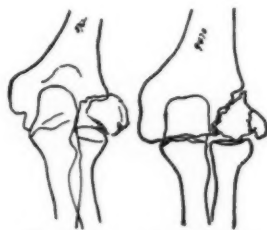


Fig. 8. Fracture of external condyle.

*Fractures of the external epicondyle*—7 cases—4.7 per cent.

A relatively unimportant injury with good prognosis. These fractures are reported to be rare. This series may be unusual in this respect. *Fracture of the internal condyle* (Fig. 9).

This is liable to be a serious type of lesion for two reasons:

1. Slipping of the fragment will result in a change of the important "carrying angle" of the elbow. It is important to maintain this angle, for changes of angle will result in weakness of the arm and deformity.

2. Injury of the ulnar nerve must be kept in mind as a possible complication as it occurs at times with this lesion.

*Fracture of the internal epicondyle*—4 cases—2.7 per cent (Fig. 10).

This is an extra-articular lesion. If there exists much displacement of the fragment, open operation may be indicated to keep it in place. Healing with displacement results in some weakness.

*Intercondyloid fractures (T-fracture)*—5 cases—3.3 per cent (Fig. 11).

This is a serious lesion. If there is much displacement of the fragments, open operation must be employed in the endeavor to bring the separated condyles together. Prognosis is serious.

*Fractures of the head of the radius*—16 cases—10.7 per cent (Fig. 12).

This lesion is liable to be serious no matter how unimportant it may look on the radiograph. Prognosis should be guarded and a perfect elbow should never be promised. Open operation often becomes necessary (total resection of the radial head). The fragment, or fragments, often do not unite even with perfect apposition.

*Fractures of the olecranon process*—11 cases—7.3 per cent (Fig. 13).

These fractures can be compared to fractures

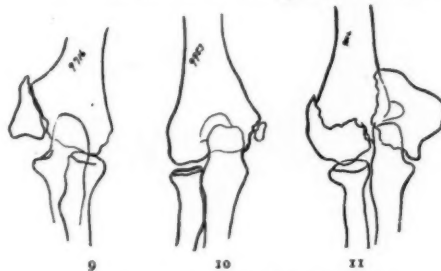


Fig. 9. Fracture of internal condyle.  
Fig. 10. Fracture of internal epicondyle.  
Fig. 11. Intercondyloid fracture (T-fracture).

of the patella and divided into two classes—

- (a) Those with little displacement (up to  $\frac{1}{4}$  inch).

- (b) Those with much displacement (over  $\frac{1}{4}$  inch). In the cases included under (b) the lateral fibrous expansions of the triceps are torn and constitute a definite and important part of the lesion.

Treatment in cases included under (a) is simple. Rest should be instituted with as much

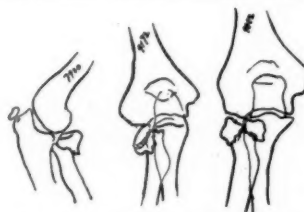


Fig. 12. Fracture of head of radius.

flexion as possible; flexion to be increased with caution during treatment.

Treatment of cases included under (b) is open operation. Here, as in the case of the patella, the most important thing to do is to bring the torn fibrous expansions of the triceps muscle firmly into apposition. When this is properly done the bone itself may at times require no suturing at all. Suturing of the fibrous tissue and bone must be firm enough to allow imme-

diate flexion of the elbow to at least 75 degrees, in which position the elbow should be put at rest and early after-treatment begun.

*Fractures of the coronoid process*—2 cases—1.3 per cent.

This is a rare lesion. Cotton says "it is almost one of the fictions of surgery." It is an unimportant fracture in that practically no treatment beyond fixation in the position of flexion is necessary.

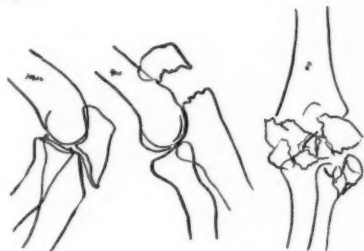


Fig. 13. Fracture of olecranon process.  
Fig. 14. "Explosive" fracture.

*"Explosive" fractures*—9 cases, 6 per cent (Fig. 14).

There occur cases, usually from a direct injury, such as striking the elbow on a hard pavement when falling from a height, which shatter all of the bones comprising the joint, into many pieces. Sometimes the force of the injury is great enough to drive some of the fragments into the adjacent musculature for an inch or two. It is as though the elbow has been exploded, wherefore our designation "explosive." The prognosis is always serious. One is tempted to think of open surgery to bring the dissociated fragments into something like decent apposition. Open surgery was attempted on three of the above cases while the remaining six were treated conservatively. The end-results in the cases treated "openly" were not as good as in the "closed" class. The conservative treatment therefore is the one of choice. It consists of putting the patient to bed, holding the elbow at about 75 to 80 degrees flexion and applying extension by the aid of the "Balkan" frame and weight and pulley traction combined with early active and passive motion.

#### COPPER IN NUTRITION

The announcement made by a group of biochemical investigators from the University of Wisconsin regarding the function of copper as a supplement to iron for hemoglobin formation under certain conditions has created much interest. It is important to sound a warning against generalizations on the basis of these observations, for already copper is beginning to be lauded by uncritical and unscrupulous persons as a cure-all for the entire gamut of the widely different anemias. It was shown that a trace of copper supplied along with iron salts eliminated the anemia hazard from experimental diets fed to rats. Thus, copper appears to be a factor in the building of hemoglobin. For the present it is futile to speculate on the function of copper in nutrition. The most that can be asserted at this time is that we may need to reckon with traces of copper in some of the most fundamental reactions of the organism. (Jour. A. M. A., June 9, 1928, p. 1872.)

#### OVALTINE

According to the manufacturer, Ovaltine "is a concentration of the nutritive constituents of malt, milk and eggs, flavored with cocoa." In other words, the product is essentially a chocolate-flavored malted milk to which has been added a small amount of dried egg substance. The company gives the following chemical composition of Ovaltine: "Protein, 14.2 per cent; Fat, 8.01 per cent; Carbohydrates 67.9 per cent; Ash, 3.76 per cent; Organic Phosphorus . . . 1.18 per cent." According to the manufacturers this "new pick-up drink from Switzerland" originated in Berne over thirty years ago. Two heaping teaspoonfuls of Ovaltine would produce about 50 calories. A glass of milk has an energy value of 170 calories. The power of inducing sleep, which is stressed in the advertising, is similar to that of other warm drinks taken just before retiring. (Jour. A. M. A. June 16, 1928, p. 1968.)

## THE PRESENT STATUS OF QUINIDINE THERAPY WITH AN ANALYSIS OF EIGHTEEN CASES

EDGAR T. HERRMANN, M.D.

Miller Hospital Clinic

*Saint Paul*

THERE still obtains, among the medical profession, a major doubt concerning the therapeutic place of quinidine in the treatment of serious cardiac irregularities. The drug has been only very sparingly employed because of the real or supposed dangers accompanying its use and because, on the whole, a properly digitalized heart with a slow though still irregular rhythm seems to carry on its task adequately.

The value of converting an auricular flutter or fibrillation into the normal sinus rhythm, expressed in terms of circulatory efficiency, has been ascertained in a series of experiments performed by Blumgart and Weiss. These two men determined the velocity of blood flow in a series of 150 patients, ranging in age between eighteen and seventy-five. They injected an active deposit of radium into the cubital vein of one arm, noting the arrival of beta particles and gamma rays in the cubital arterial vessels of the other arm by means of an appropriate detecting device. In 50 normal individuals in whom venous pressure and vital capacity were normal the time velocity from arm to arm ranged from 15 to 24 seconds. The average time was 18 seconds, only nine individuals exceeding 20 seconds. In a given individual, successive determinations with varied dosages usually checked within two seconds. In twelve patients with auricular fibrillation the time velocity averaged 44 seconds with a range of from 28 to 60 seconds. This is an average of double the normal time. Further, in four patients treated with quinidine, the time, after reversion of the heart to normal rhythm, was shortened, on the average, 8 seconds, with a range here of from 2 to 16 seconds.

Such changes from the normal velocity of blood flow suggest the obvious benefit of inducing normal cardiac rhythm wherever possible. This is the more pertinent when one considers the mechanical effect on the circulation of long continued fibrillation or flutter. In fact it has been ascertained by Frey that only 10 per cent of all perpetual arrhythmias run their course without causing definite circulatory disturbances.

Sandesson, in 1893, worked experimentally with quinidine and realized its greater effectiveness as compared to quinine. In 1918 Wenckebach introduced quinine in the treatment of cardiac irregularities, and Frey in the same year introduced quinidine therapeutically for the same purpose. Since that time, the literature on quinidine has increased steadily, there being, however, as yet no therapeutic unanimity of opinion concerning it. Many experimental studies are at hand, and pharmacological investigations are at present everywhere under way.

One of the most recent of the latter is the investigation undertaken by Hatcher. His results depend on intravenous injection of the drug. 95 per cent of the drug leaves the blood within five minutes, and its toxicity varies directly with the rate of its intravenous injection. He finds that 80 mgms. per kilo is a fatal dose for the cat, when the drug is injected at the rate of 5 mgms. per kilo per minute. Much smaller doses are sometimes fatal with rapid injection. He finds further that the essential elimination of the drug is practically completed in three to four hours, after which the animal requires as much to cause death as one not having received a previous dose. On the whole, quinidine behaves like quinine in the body. One added fact of interest is his conclusion that toxic doses of quinidine or quinine are not synergistic with the toxic action of ouabain (a digitalis body) on the heart.

The clinical and experimental work on the drug shows it to have a profound depressing effect on the heart muscle.

Eismayer, summing up the literature, finds most observers holding that the conduction time of the bundle is lengthened and with it the electrocardiographic P-R interval. With the exception of Love, it is supposed that the drug prolongs the refractory period. There is a general feeling that the ventricular rate is increased under quinidine, though the cause of this is at present uncertain. Experimental work on healthy hearts shows changes in the normal electrocardiogram consisting of flattening and widening of the

P and R waves, lengthening of the P-R interval, partial and complete block as well as plus or minus changes in the variation of the T wave. Korns, discussing experimental electrocardiographic changes, shows that in dogs it produces delay of both intra-auricular and intraventricular conduction and changes in the T wave. Left bundle branch block in a patient due to quinidine is also described by him. It is supposed that the coronary circulation responds to the drug with dilatation of the arteries while toxic doses induce ventricular fibrillation.

Drugs having an antagonistic action to quinidine are digitalis, nicotine, isopelletierin, chloroform, adrenalin, aconite, calcium, barium, and strontium. Potassium possesses a synergistic action.

The theories dealing with the cause of the success of quinidine in fibrillation and flutter are various. Lewis believes that the lengthening of the refractory period causes the circulatory wave to die, in the face of a lengthening of conduction time. Hoffman, who believes the cause of fibrillation to be an abnormal irritability of heart muscle, attributes the success of the drug to its depressant effect.

The dangers attendant on the use of the drug have been variously estimated by different observers. Broadly speaking, they fall into two classes. Deaths under quinidine have been either embolic or due to sudden cardiac failure. In the first instance the mechanical effect of a regular auricle in loosening a clot has been felt a probable cause; in the second instance, the direct depressant toxic action of the drug on the myocardium, already damaged by process of the disease, is held responsible. Eismayer has prepared a table showing the percentage of mortality in 934 cases, which is reproduced in Figure 1. It is very difficult properly to estimate the rôle of quinidine in the production of embolic phenomena. Before the drug was used, the occurrence of embolic death in cases of fibrillation was not, it seems to me, more rare than it is under quinidine. Certain factors seem to bear this out. If one goes over the literature, one finds that certain observers report no deaths from emboli; others, with perhaps fewer cases to record, report the reverse. Thus Riecker reports fifty-two cases with no deaths, whereas Bourwell and Dienaide show three embolic deaths in a series of

sixteen cases. Carr and Spoenemann had no deaths in sixty-one cases, whereas Schwensen out of fourteen cases reports one embolic death. Stroud feels that embolic death has not been augmented by the use of the drug, his series of

Autor	Fälle	Todesfälle	
		Embolie	Herzod
Arjeff	43	—	—
Benjamin u. v. Kapf	27	—	1
v. Bergmann	9	—	—
Boden u. Neukirch	17	—	—
Bourwell u. Dienaide	16	3	—
Carr u. Spoenemann	61	—	1
Clark u. Kennedy	45	—	1
Clerc u. Noel-Deschamps	27	—	—
Ellis u. Kennedy	7	—	—
Haas	44	—	—
Hamburger u. Priest	18	—	—
Hart	15	—	—
Hay	365	7	10
Hewlett u. Sweeney	11	—	—
Jenny	18	—	—
Kaufmann	50	1	—
Klewitz	15	—	—
Korns	36	—	—
Levy	11	—	—
Riecker	52	—	—
Schwensen	14	1	1
Sebastiani	10	—	—
Vicot, Maroni u. White	71	—	1
Wickner	15	—	—
Wolferth	12	—	—
Wybauw	25	—	—
	934	12	16

= 3.2%

Fig. 1.

forty-two cases showing no such fatality. Clark Kennedy is impressed with the danger of embolic death, yet in 452 cases collected by Viko, Marvin and White, all cases of fibrillation under quinidine, the embolic deaths were no greater in percentage than in 200 cases of fibrillation in which no quinidine had been used.

The case for toxic effect on the myocardium seems to be much clearer. There is, in the first instance, a mass of experimental data available, all of which substantiates the tenet that the drug has a definite toxic, depressant effect on heart muscle. Lethal doses show ventricular fibrillation with great regularity and the evidence adduced from electrocardiographic tracings is cited above. Failure of circulation with the production of edema and respiratory difficulty is, in a measure, directly dependent on efficiency of heart muscle, and there is clinical evidence at hand giving quinidine a causal relationship with such failure. Eismayer recounts two cases, neither of which was made regular by the drug, in which, during its administration, symptoms of circulatory failure were much augmented. Frey thought that such toxic action might be the re-



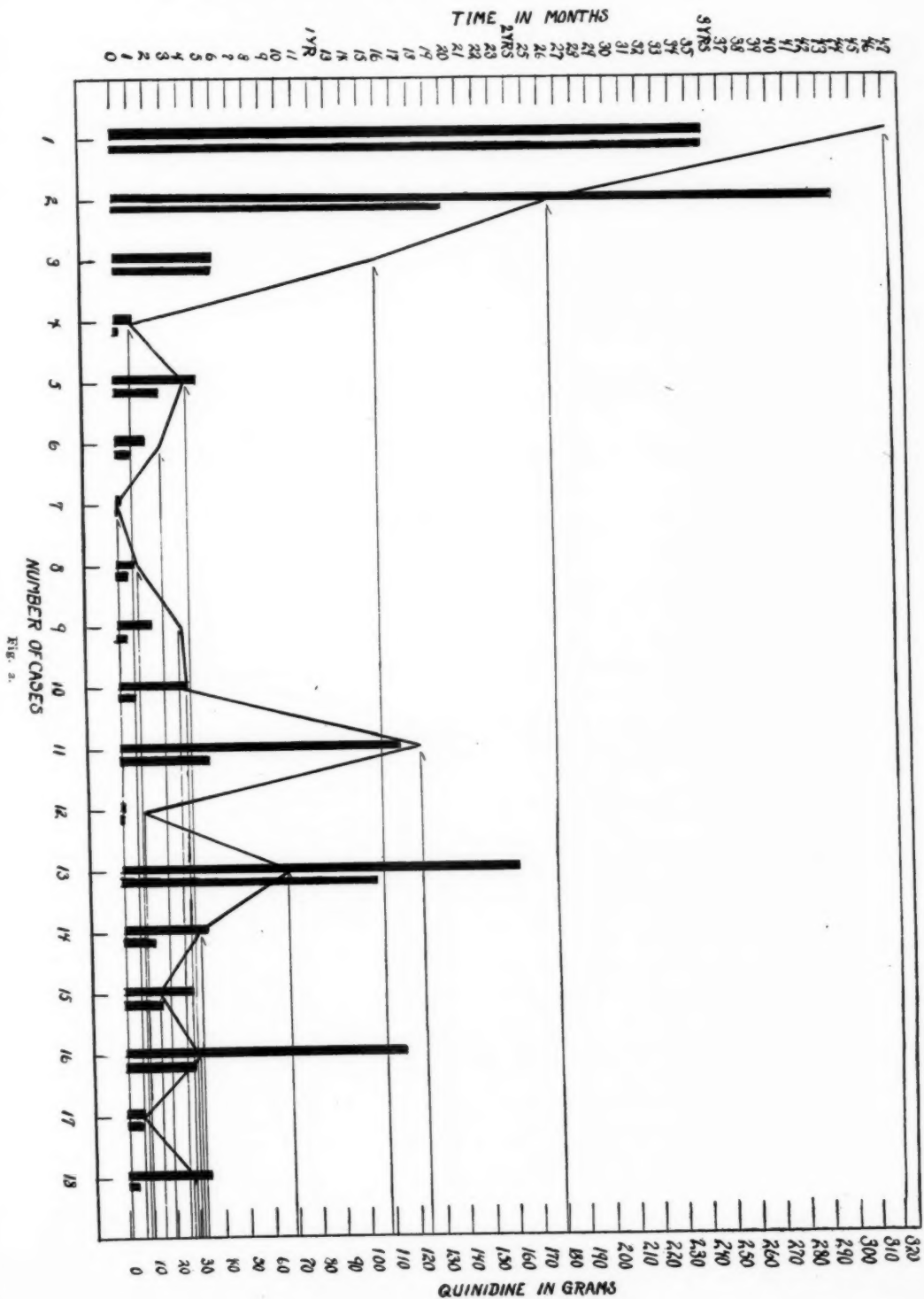
sult of personal idiosyncrasy toward the drug; this is, however, hardly likely. A glance at Eismayer's collected table shows the apparent greater occurrence of death from this cause, in the proportion of seven observers to four in which death was attributed to embolus. Respiratory paralysis has been given as a cause of death, Reid, in 1922, reporting such a case and Von Frey two. Schott demonstrated the occurrence of respiratory paralysis in dogs following quinidine. Haas reported a case in which, after 43 grains of quinidine in three and a half days, the patient suddenly became pulseless and cyanotic, with a cessation of respiration. Recovery ensued. Clark Kennedy reports one death due in his words "undoubtedly to the combined toxic action of digitalis and quinidine on the myocardium, autopsy failing to reveal the cause of sudden death." He also reports a case of acute heart block almost ending fatally, with signs like those recorded in the patient of Haas. Lewis, in discussing the possible relationship of quinidine to sudden death, says that there is a possibility of long standstill of the ventricle consequent upon a slight raise in the auricular rate, or that a slowing or actual standstill of the ventricle may obtain at the moment of resumption of a normal sino-auricular rhythm.

The literature is largely consistent in its conclusions pertaining to contra-indications for the use of the drug. All cases of marked cardiac decompensation should not receive quinidine. Further, those in whom severe myocardial damage exists even without decompensation, and cases of fibrillation in which complete heart block exists should not be submitted to the drug. Minor variations from these groups are recorded by different men, largely based on individual judgment. Cases of acute endocarditis or myocarditis should, in Eismayer's opinion, be excluded, while Smith, Janney and Clarke exclude mitral fibrillations of long standing or those in which there is marked cardiac hypertrophy. Clark Kennedy emphasizes as contra-indications cases of active, progressing myocardial disease, rheumatic, infective, syphilitic or degenerative in origin. He feels that the drug should not be used in acute exophthalmic goiter fibrillation or in cases of mitral stenosis where tachycardia and decompensation immediately precede the onset of fibrillation. Heart block of any type and aortic disease are likewise, in his opinion, not favorable.

The bad clinical effects of quinidine on the patient may be summed up under headache, nausea, vomiting, bowel disturbances (largely diarrhea), vertigo and tinnitus. Increased heart rate and subjective feelings of nervousness are not uncommon. The use of the drug in the face of subjective discomfort depends on individual judgment. On the whole, minor disturbances do not demand its withdrawal. Clark Kennedy, who gave quinidine in very large doses, adds to the above list sudden attacks of abdominal pain and visual symptoms, such as transient attacks of failing vision or mistiness of vision. These eye symptoms came only with the use of large amounts of the drug and visual fields as well as retina remained normal throughout. They were accompanied by marked increase in ventricular rate as well as fall in blood pressure. He observed papular, scarlatiniform rashes in two cases, urticaria once, inflammatory edema of the face twice. Mild pyrexia closely associated with the height of drug dosage was seen in ten of his cases. Eismayer records the history of a woman who had profound collapse with cloudy sensorium and Adam-Stokes syndrome, who, because she had no previous or later attack of the same kind, was judged to have reacted to quinidine in this way. Cerebral symptoms with marked excitability, shrieking, diplopia and complete amnesia with respect to these events following them by a day, was noted in two cases by Clark Kennedy. No abnormal physical signs followed these attacks and he concludes that they were due to altered cerebral circulation rather than to direct or embolic action of quinidine.

The question of dosage and relative effect of quinidine on various types of fibrillation may, perhaps, best be discussed in connection with the series of cases reported here.

There is a difference of opinion about the type of case in which, with or without previous digitalis, the drug should be used. Clark Kennedy, writing in 1923, feels that quinidine should not be given when auricular fibrillation has existed for three years or more. The more recent view holds that in cases with moderate circulatory embarrassment a thorough course of digitalis preceding the use of quinidine is recommended. With the disappearance of edema and reduction of heart rate digitalis should be discontinued and quinidine begun. In general, one gives an initial trial dose to determine, as far as possible,



any individual sensitivity to the drug. For this purpose 3 grains of quinidine sulphate once or twice a day usually will suffice. Should marked subjective symptoms arise at this point one will perhaps be very hesitant about continuing. The next step admits of very wide variation indeed. The range in amounts given by different investigators is wide, from 6 to 35 or 40 grains in twenty-four hours. Eismayer's greatest total dose in any one given course of treatment was 12 grams, his work being the most recent on the continent. Weckebach gives from 2 to 2.5 gm. in twenty-four hours, the latter dose in very large individuals. Between two extremes, the dosage varies according to the point of view and experiences of each clinician. It is precisely here that the value and danger of quinidine become closely related, a situation the brunt of which must be borne by the experience and judgment of the clinician. So far, it is not evident that a definite proportion exists between amount given and result achieved. Roughly speaking, cases fall into three groups: those in which a regular heart being achieved it must be maintained by constant, small doses of quinidine; those in which quinidine, once regularity is obtained, may be discontinued; and finally, those in which the drug has no effect. This is illustrated by the tabular and graphic representation of eighteen cases studied at the Miller Hospital Clinic during the last three and a half years. The total amount of quinidine given varied from 320 grams, given over a period of three years, to 2 grams, given over a period of three days. The method of giving the drug was modified with each case, and succeeding graphs will give, in some detail, the procedure followed in individual cases. In all, the object in mind was to push the drug to its physiologically effective point, avoiding toxic manifestations chiefly by individual and careful observation. The graphic picture of total therapeutic relationship, illustrated by Figure 2, shows the comparative independence of amounts of quinidine and time under observation. Case 1, becoming regular under the drug, needed small amounts of it continuously to insure regular heart action, any cessation of the drug resulting in a recurrence of fibrillation. Case 2, on the other hand, continues regular with a total of 179 grams of quinidine. Cases 3 and 13 are somewhat comparable to the first case, whereas 11 and 16 are more like case 2. The typical procedure

in an individual case is graphically represented in Case 10 (Fig. 3). A total of 29 grams of quinidine was given over a period of two months and in the manner represented. There were minor evidences of cardiac decompensation such as slight edema of the ankles and a few moist râles in the bases, on admission to the hospital. The heart was rapidly and fully digitalized, and quinidine begun on the eighth day of hospitalization. A period of twelve days on the drug had no effect on the irregularity, whereupon digitalis was again given. A subsequent trial with quinidine was, as is shown, successful. Since that time the patient has again become irregular, undoubtedly belonging to the type that requires constant quinidine to effect a constantly regular heart. Case 9 (Fig. 4), graphically represented, is an example of unsuccessful quinidine therapy. Handling and dosage are almost identical with those in the case last shown, yet no effect was obtained. Further therapy, with larger amounts of quinidine, might, even here, result in regularity, but severe gastro-intestinal symptoms made such an action impractical. Case 11 (Fig. 5), which is next represented, shows an effective result achieved by the use of relatively large daily doses of quinidine over a period of a few months. Sixteen grains a day over a period of three months were required to achieve and maintain a normal sinus rhythm. At the end of that time the drug was discontinued and, with no quinidine during the last year, the pulse has remained perfectly regular in the face of rather sharp physical exercise, such as felling trees. There were several attempts made during the administration of the quinidine to reduce it in amount. Each attempt re-established fibrillation for a few hours until the amount of the drug was again raised to 16 grains a day. These trials, which represented irregularities of a few hours and variation in dosage of 7 grains, are not represented in the chart. Subjective symptoms of nausea, occasional tinnitus and nervousness were present during part of the time under treatment. No other effects were noticed and the electrocardiograms obtained after the establishment of sinus rhythm showed no abnormalities. It is obvious from the data that ordinary doses of quinidine would, in this instance, have failed to re-establish a normal cardiac mechanism. Further, it is interesting to note that this normal state of things has continued for a full year after cessa-

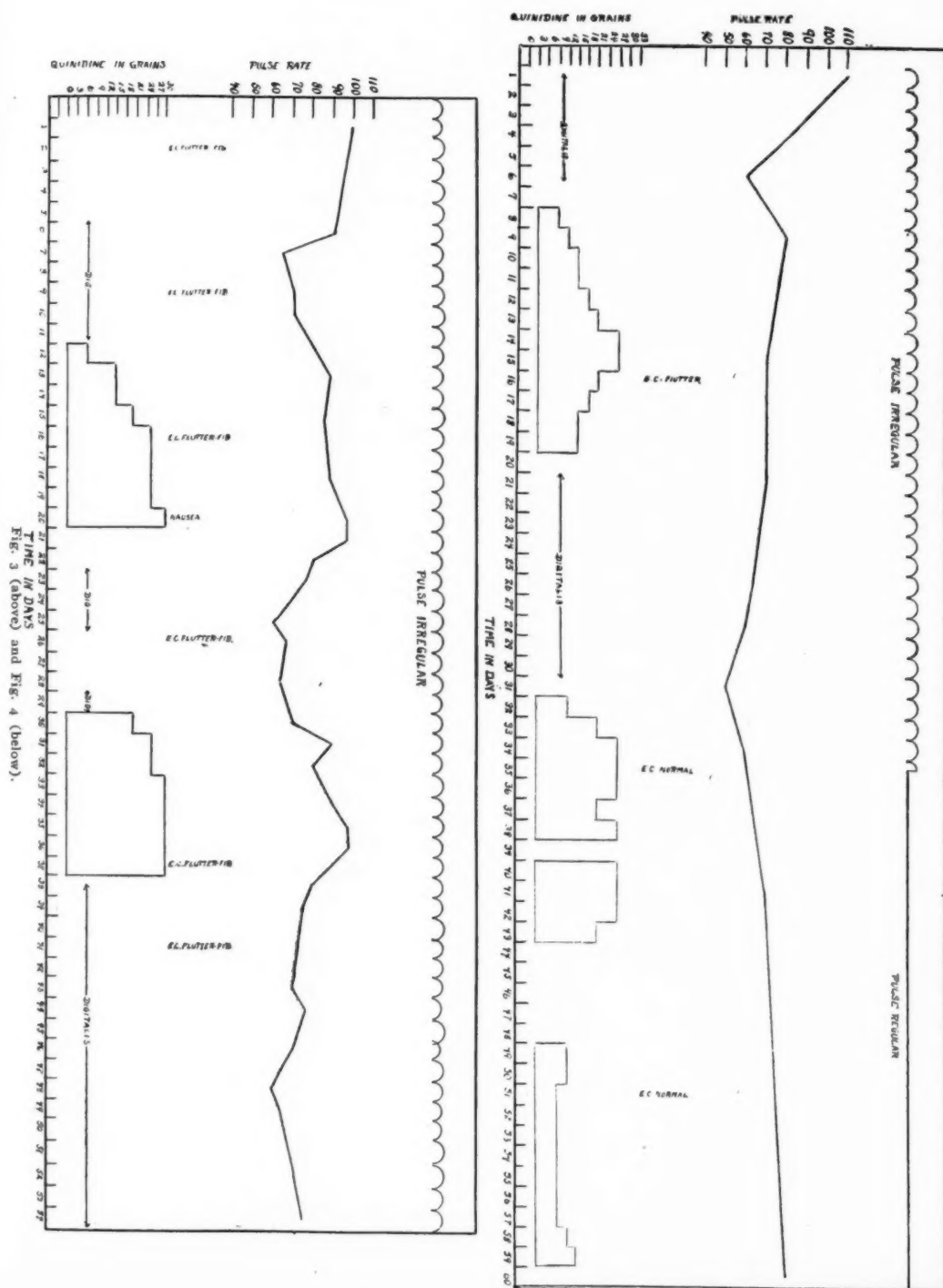


Fig. 3 (above) and Fig. 4 (below).

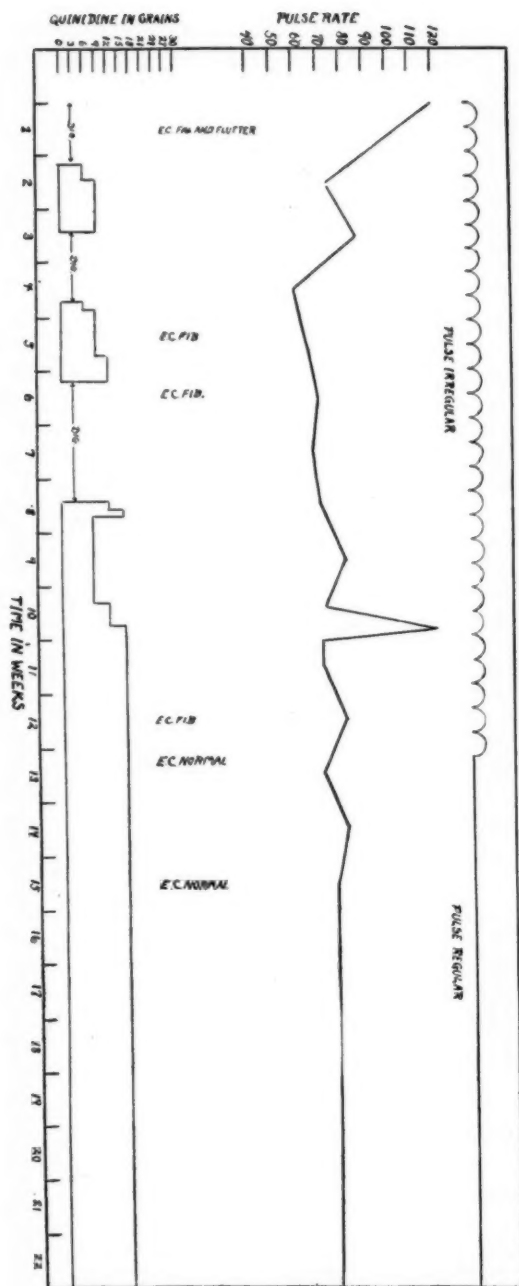


Fig. 5.

tion of the drug in the face of a rather severe test of physical exertion on numerous occasions. An interesting comparison may here be made with Case 1 (Fig. 6). This chart represents a

course of quinidine carried on daily over a period of three years, with an average daily dosage of 9 grains. The patient, a man sixty years old, was hospitalized with moderate evidence of cardiac decompensation, and throughout the observed period showed a very limited degree of cardiac reserve. Numerous electrocardiograms over a period of two years showed variable pictures of myocardial efficiency, ranging from inversion of the T in leads one and two, to branch bundle block. The end of the two-year period showed a normal electrocardiogram. A careful study of the tracings leads one to believe that there was no particular toxic effect of the quinidine on the myocardium unless a transient branch bundle block be so interpreted. No subjective symptoms attributable to quinidine were observed throughout all the three years. Death ensued at the end of that time, following six days of renewed cardiac decompensation. Just previously, the patient had been seen and appeared in all respects better than on previous occasions. The quinidine was not increased at this time, and there is no reason to suppose that it played any rôle in the final picture of muscle failure. The value of quinidine therapy in this case was undoubted. A re-established normal rhythm greatly helped the patient's cardiac efficiency, and undoubtedly prolonged his expectancy. His age, and the degree of myocardial involvement present, together with the signs of circulatory failure, placed this person in the class of those in whom successful quinidine therapy is doubtful. The event, together with numerous cardiographic tracings, not only justified its use, but showed no evidence of any depressant effect exercised by the drug on the myocardium.

Case 3, presenting a good therapeutic result, shows certain interesting points of difference from Case 1. The age of the patient, which is twenty-seven, and the lack of demonstrable etiology for the presence of fibrillation, are both in pointed contrast to Case 1. Again, the chart (Fig. 7) shows the type of quinidine administration used. The first period of the drug was, as will be seen, unsuccessful. Followed by a course of strophanthus administration, the second attempt with quinidine was entirely successful. For five months, up to the present, this patient continues regular on a daily amount of 9 grains of quinidine, cardiographic evidences showing an entirely normal heart. Whether or not quinidine



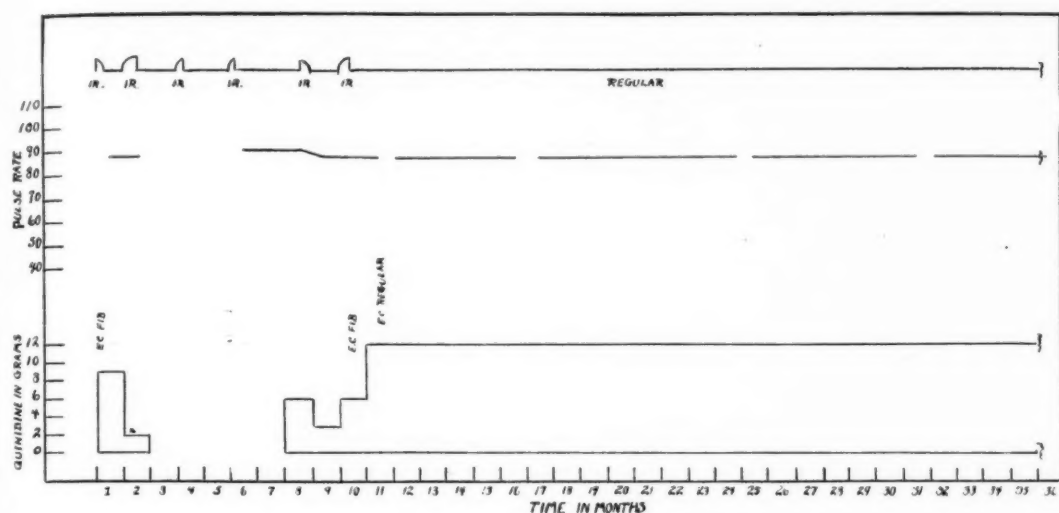


Fig. 6.

may later be discontinued, remains to be seen. Case 13 received quinidine in approximately the same amounts for one year and four months, after which no more was given. The ensuing year up to the present showed an entirely regular rhythm, with no further need for the drug.

Certain cases appear to be absolutely intractable. Such a one is represented in Case 18 (Fig. 8). With intervals of digitalis, this patient was given 29 grams of quinidine in fifteen days, one

twenty-four hour dose going up to 40 grains. There was no effect on the fibrillation. It is interesting to note that under each course of quinidine the pulse rate rose steadily, reaching 120 a minute. Some nausea and dizziness was also in evidence.

A review of the tabular data in these cases (Fig. 9) appears to bear out the recent continental point of view that age, type and duration of lesion are none of them factors of account in

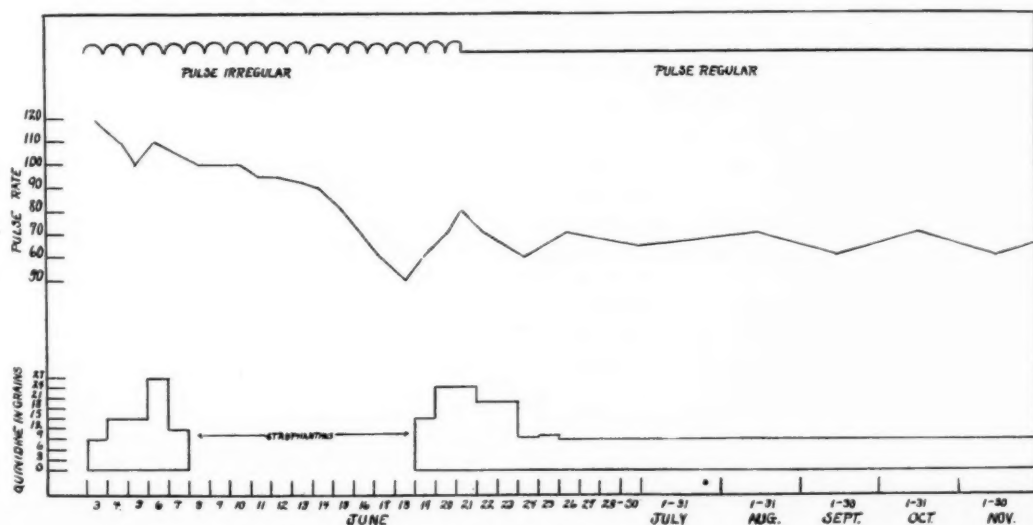


Fig. 7.

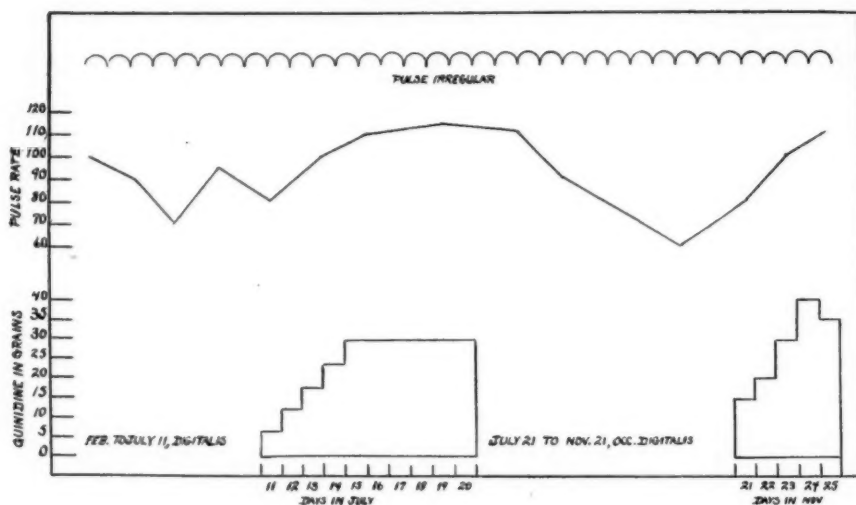


Fig. 8.

forecasting the success or failure of quinidine therapy. Etiologically the cases fall into six groups as follows:

- A. Four cases of unexplained etiology.
- B. three cases of fibrillation with toxic adenoma.
- C. Five cases of fibrillation with myocardial degeneration.
- D. Four cases of fibrillation with mitral disease.
- E. One case of fibrillation with exophthalmic goiter.
- F. One case of fibrillation with acute myocarditis.

No results were obtained in two cases of mitral disease, two cases with definite myocardial degeneration and one case associated with toxic adenoma. The one case in whom a transient effect was obtained might very well become permanent under adequate control with quinidine. This was a fibrillation in conjunction with mitral stenosis. In the eighteen cases here considered there is no reasonable emphasis on selective effects of quinidine on the basis of etiology, chance selections accounting for the slight variation observed.

The percentage of result obtained is illustrated by Figure 10. From this it will be seen that 66 per cent of all the cases was permanently restored to a normal rhythm. This, in every case save one, means a period of observed regularity of four months or more. Five per cent, or one

case, had a transient effect, and in 28 per cent there was no result. One has the impression that a more aggressive use of quinidine in several of the recalcitrant cases may have yielded a higher percentage of permanent results. The obtained percentage lies between high and low figures recorded in other clinics. Clark Kennedy reports 82 per cent restored to normal rhythm but does not specify the length of time during which normal rhythm prevailed. Eismayer shows that a transient effect was obtained in 58.5 per cent of 1,058 collected cases, while a permanent effect was obtained in 34 per cent of 666 cases. The criterion of permanence in these cases was three months.

The ill effects of quinidine noted in this group of cases were confined to the mild general disturbances. Practically all the cases receiving full therapeutic doses of the drug showed some tachycardia. Two people were definitely made nervous, in the subjective sense, feeling that they could not be quiet or restful and becoming easily on edge. Perhaps one-third of them had nausea and headache, the same number complained of anorexia and several were subject to tinnitus. No pyrexia was observed. One case perspired profusely while on the drug. There were in the entire series no severe toxic effects and no deaths traceable to quinidine. A careful review of the electrocardiographic tracings fails to show any demonstrable lengthening of the P-R interval or any of the other electrical changes recorded by

Case	Age	Diagnosis	Observed for	Quinidine for	Quinidine total gms.	No. effect	Trans effect	Perm. effect
1	60	Au. Fib. Mitral	3 yr.	3 yr.	320			+
2	45	Au. Fib. Myo. Deg.	3 yr. 8 mo.	1 yr. 8 mo.	179			+
3	27	Au. Fib.	6 mo.	6 mo.	108			+
4	55	Au. Fib. Toxic ad.	1 mo.	5 da. 3 mo.	5.5	+		
5	48	Au. Fib. Toxic ad.	5 mo.	10 da.	31			+
6	69	Au. Fib. Myo. Deg.	7 wks.	3 da.	19	+		
7	70	Para. Fib. Ex. Goiter	3 da. 1 yr.	3 wks.	2			+
8	55	Trans. Fib. Toxic ad.	1 mo.	17 da.	9			+
9	25	Mitral stenosis	2 mo.	32 da.	27	+		
10	43	Double mitral Au. Fib.	4 mo.	5.5 mo.	29		+	
11	36	Flutter Fib.	1 yr. 5 mo.	5 da.	124			+
12	38	Par. Fib. Flutter	5 da. 1 yr.	1 yr. 4 mo.	8			+
13	61	Au. Fib. Myo. Deg.	2 yr.	2 mo.	70			+
14	67	Double mitral Au. Fib.	5 mo.	2 mo.	32	+		
15	44	Au. Fib.	4 mo.	2.5 mo.	15			+
16	67	Au. Fib. Myo. Deg.	1 yr. 5 mo.	4 mo.	32			+
17	60	Au. Fib. Erysipelas Myocarditis	6 mo.	20 da.	9			+
18	56	Au. Fib. Myo. Deg.	5 mo.	16 da.	29	+		

Fig. 9.

different observers. One person, mentioned in detail above, showed during the course of observation a branch bundle block; however, it was not felt that this was in any way related to the use of quinidine.

In conclusion, one is inclined to summarize as follows:

1. That quinidine is an effective agent in converting auricular fibrillation into a normal rhythm. Sixty-six per cent of the present series

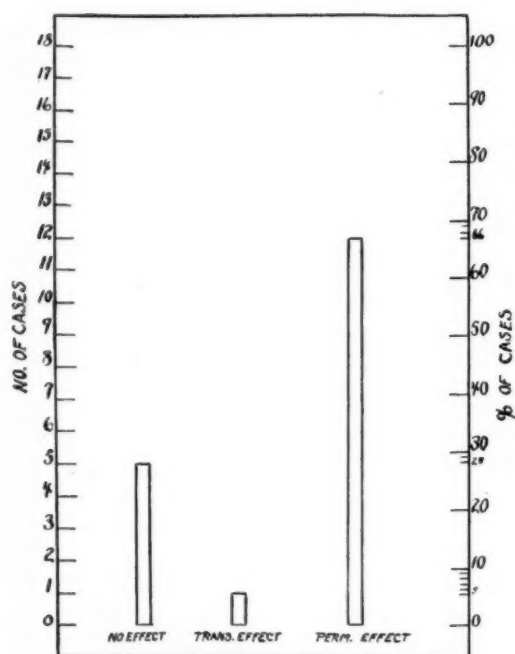


Fig. 10.

of cases was so converted over a period of five months or more.

2. Etiology and duration of fibrillation play very little rôle in predetermining the value of the drug.

3. The danger of quinidine, especially with reference to embolic death, has probably been over-rated. Cases with heart block, severe myocardial degeneration or marked decompensation

should, however, not receive quinidine because of its toxic effect on the myocardium.

4. The dose of the drug should be great enough to procure a physiological result in any given case. Its comparatively rapid excretion should be borne in mind, as also the fact that moderately large doses are often successful where small ones are of no avail.

5. Minor unpleasant effects of the drug are not necessarily indications for stopping its use. Tachycardia is a rather frequent objective sign noted during the administration of the drug but does not persist after its removal.

6. In cases of circulatory embarrassment or fibrillation with marked high rate and pulse deficit a thorough course of digitalis should precede the use of quinidine.

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## OCCUPATIONAL EYE SURGERY\*

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THIS paper will cover in more or less systematic form the type of eye surgery that is necessitated following injuries received in various occupations. It will begin with the minor injuries and culminate with the major. Greatest stress will be laid on the lesser injuries, the type of injuries you men are called upon to treat and dispose of in the routine care of railway accident cases. Very little new will be presented and my aim shall be to help you decide what to do with the various eye patients in order to return them to duty as early as possible. Many surgeons have so aptly said, "The early return to duty benefits both the employee and employer."

Working in the rain, wind, or dust often causes hordeola. This is an infection of Zeis's glands and is usually due to a staphylococcus organism. If seen early, hot boric acid compresses and yellow mercuric oxide ointment usually suffice. If late, free deep incision through the conjunctiva should be resorted to. Errors of refraction and systemic disorders should also be corrected.

Injuries to the lids are usually the result of laceration, contusions, and punctures. The nature of the wound depends on the type of inflicting instrument. If the wound is of the lacerated or incised type, approximation of the edges should be made. This may be done by horse hair or fine silk sutures. Personally, I always employ fine black silk for all suturing around the eye. It has the advantage of always being easily seen when the time for removal arrives.

In approximating lacerated wounds of the lids or conjunctiva always do so as early as possible and restore the eyelash line before the skin line is drawn together. Always try to remove foreign bodies from the conjunctiva before suturing. Subsequent treatment is usually for ecchymosis and should consist of cold compresses together with germicidal collyria.

Burns of the eyelids often result in severe contractions. Many clever operations have been devised for the correction of ectropion and entro-

pion. To discuss these in detail is not the province of this paper. I believe it will suffice to say that the proper early treatment will in most cases greatly decrease the morbidity. Especially is this true in the formation of symblepharon. All foreign material should be removed at once by forceful washing of the conjunctival sac with boiled water. If the substance causing the burn is acid, an alkaline wash should be used. Follow this cleansing with olive oil and atropine (1%). Free the adhesions between the bulbar and tarsal conjunctivæ daily by a probe; always try to prevent the formation of symblepharon and, if necessary, transplant a mucous membrane graft. Watch for corneal ulcerations, hypopyon, and panophthalmitis. Without a doubt these cases should be seen by an oculist and placed under his care at the earliest possible moment. At the best the results are unsatisfactory. Their later treatment would come under the head of plastic surgery, a subject I do not wish to open.

Injuries to the conjunctiva and sclera consist of foreign bodies, both free and imbedded, penetrating wounds and the resultant conjunctivitis. The foreign body should be removed under local anesthesia as early as possible. I am of the opinion that Butyn (2 per cent) is the proper anesthetic to use. Cocaine has a tendency to roughen and wrinkle the epithelial cells of the cornea, which Butyn does not do. The resulting conjunctivitis may be treated with a few drops of Metaphen (1-5,000) or Neo-Silvol (25 per cent) once or twice daily. Penetrating wounds of the conjunctiva or sclera should be treated as I have described under lid wounds.

Corneal wounds consist of foreign bodies, almost always imbedded, ulcers, pterygia and penetrating wounds. Foreign bodies should be removed under Butyn anesthesia with dull or sharp eye spud. These foreign bodies can often be located, as can corneal ulcers, by using a drop of 2 per cent Fluorescein. The spot shows a distinct green color. After-treatment varies with the case, from dark lenses to collyria and silver preparations.

\*Read before Great Northern Railway Surgeons' Association, Great Falls, Montana, June 23, 1927.



In any wound of the eye, or about the orbit, an intraocular foreign body should be suspected, and we should not be content until every method has been employed to prove its absence.

Instruction should be given in all industrial plants that no effort at removal of a foreign body shall be made, except under direction of the company oculist, and the following precautions should be taken to avoid infection.

In all shops a package of sterile eye pads and tubes of 1-3,000 bichloride of mercury ointment should be kept on hand. In case of accident instruction should be given to squeeze the bichloride ointment between the lids of the injured eye. An eye pad should then be applied and the case referred to the company oculist for further treatment.

Traumatic ulcers are usually rather resistant. It is well to remember the five layers of the cornea and to remember that an ulcer penetrating Bowman's membrane will leave a scar.

There should be relief from photophobia and pain. Holocain ointment (1 per cent) is of value here and should be employed in preference to cocaine. The eye should be atropinized. The ulcer may be touched directly with 2 per cent silver nitrate. Care should be taken to carefully watch for any rise of intraocular tension. Hot compresses of boric acid solution are valuable. An electric light bulb over a moist compress is a handy method. Col. Smith recommends the use of 10-20 minims of a 1-4,000 solution of mercury cyanide injected subconjunctivally. I believe the addition of salt to this solution is beneficial. Calomel dusted into the conjunctival sac proves efficacious in some cases. The following solution is applied to the ulcer, following anesthetization, by Woodruff:

Zinc Iodide .....	Grs. 72
Iodide .....	Grs. 120
Glycerin .....	Grs. 240
Aqua Dest. ....	Qs. 480

This is applied by topical application direct to the floor of the ulcer.

If the ulcer shows evidence of impending perforation, I release the intraocular tension by a paracentesis. Pain is lessened by this procedure and healing is more rapid. The actual cautery method is mentioned by de Schweinitz. One should be certain to cauterize all the ulcer floor. Personally, I do not employ the cautery. If the

ulcer is due to focal infection, the intramuscular injection of boiled milk will be a valuable aid. When the ulcer and resulting scarring becomes widespread a flap of conjunctiva may be dissected and drawn over the ulcer area. This conjunctivoplasty leaves a minimum scar.

Pterygia of traumatic origin, if they warrant surgical interference, should be treated by the method of McReynolds, which consists in transplanting and burying the corneal attachment.

Penetrating wounds of the cornea always mean a possible aqueous infection and one should anticipate an iritis or iridocyclitis. Both iritis and corneal ulcers should, according to Wm. Sweet, be treated with hot compresses, while trauma and conjunctivitis should receive cold.

When there is an injury penetrating the eye and the possibility of an intraocular foreign body exists, the case immediately assumes major significance even though it be otherwise insignificant. The earlier the foreign body can be removed the better the prognosis.

Intraocular wounds consist of penetration by a sharp object and penetration by small pieces of steel, glass, etc. If the foreign body is an opaque object, it should immediately be localized by the Sweet triangulation method, with which any competent radiologist is familiar. Attempt at removal, if the piece is magnetic, should be instituted promptly. This may be done through the wound of entrance or an incision through the cornea, if the object is anterior to the lens, or by posterior sclerotomy, if in the vitreous. A traumatic cataract will usually follow penetration of the lens or ciliary body by a foreign body and when it reaches the proper stage a lens extraction should be done. Iridocyclitis and retinal detachment are complications which may follow a penetrating wound of the eye. In the event of failure of removal of a piece of steel, the eye should be watched for siderosis and beginning sympathetic ophthalmia and immediate enucleation advised. A permanently blind eye should be removed as early as possible, as it is always a possible source of trouble. Shahan, of St. Louis, reports in the February, 1927, issue of the American Journal of Ophthalmology a case of sympathetic ophthalmia following evisceration of a panophthalmitic eye. Immediate enucleation of the shrunken globe was performed and after a very stormy course the remaining eye returned to normal vision.

I have four cases I wish to report to you today:

1. Penetrating wound of eye.
2. Ulcus serpens with a conjunctivoplasty.
3. Enucleation and gold ball implantation.
4. Magnetic foreign body penetration of the eyeball.

*Case 1.*—Mr. E. J., aged 64, was referred by physician from neighboring town. While walking in the woods in the twilight, he ran through a projecting twig which penetrated the conjunctiva and sclera of his right eye over the internal rectus muscle. When I saw him the right eye was chemotic and he was unable to keep the lids open. Vision in left eye was 20/40 and in right 10/200; tension was not increased in either eye; the fundus in right eye was visible and no abnormalities were evident. There was an abrasion of the cornea, and the conjunctiva and sclera were greatly injected. The eye was put at rest with atropine and cold compresses and the next morning, on examination, it was impossible to obtain a fundus reflex. The anterior chamber was filled with blood, and I was just able to get light perception. The eye was very painful and morphine was required for relief. The eye was treated expectantly but it continued to get worse and at the end of a week there was decrease in vision of the other and an enucleation was decided upon. Immediately following the enucleation the patient felt better, had no pain, and the other eye returned to its former visual state in three days. Section of the removed eye showed a diffuse panophthalmitis. Undoubtedly, there was a beginning sympathetic ophthalmia in this case which responded promptly to enucleation of the offending member.

*Case 2.*—Mr. J. W., aged 62, a painter by trade, was referred to me for persistent corneal ulcer which refused to respond to treatment. Various measures had been instituted to heal this ulcer without result. There evidently was a decrease in the corneal nutrition resulting in protracted delay in repair. It was a typical Ulcus Serpens and a conjunctivoplasty was decided upon. This ulcer was quite central and a bridge of conjunctiva was utilized after the method of Kuhnt. After a few days the conjunctival bridge was removed

and replaced in its original position. The ulcer healed promptly and a minimum scar remained. Vision was 20/40 the last time the patient was seen, which was nine months after operation.

*Case 3.*—Miss J. S., aged 18, a student. At the age of eleven years this girl had fallen on a pair of scissors and they had penetrated the eyeball through the cornea. There was a dense corneal leucoma with a soft eyeball. She consulted me for cosmetic reasons and requested an enucleation and subsequent fitting of an artificial eye.

The eye was enucleated and an 18 mm. gold ball implantation was done according to the Sweet modification of the Frost-Lang operation. The recti muscles were sutured to the capsule of Tenon and the capsule closed over the gold ball by continuous silk sutures. Then the conjunctiva was sutured over the capsule by continuous silk sutures. The movement of the artificial eye when last seen was so near the excursions of the good eye that one must needs watch closely to detect its artificiality.

*Case 4.*—Mr. L. S., aged 58, was struck in the left eye by a piece of rusty iron from a rivet. The wound of entrance was evident in the inferior nasal quadrant of the cornea. The iris was adherent to the corneal wound and it was impossible to see the fundus. The vision in the good eye was 20/30 and in the injured eye, fingers at three feet.

The x-ray showed a definite foreign body located 2 mm. back of the cornea, 0.5 mm. to the nasal side and 2 mm. below the horizontal line, after triangulation by the Sweet method. Its size was  $2 \times 1 \times 0.5$  mm. Fourteen attempts were made by myself and other ophthalmologists to remove the piece of steel with a giant Volkmann magnet and large Rolle without success. A cataract was forming rapidly and the patient was informed that two paths were open to him, an immediate enucleation or a policy of watchful waiting with a cataract extraction later on if the eye quieted down. He elected the latter and the eye was watched for evidence of siderosis or uveitis, which did not develop. There was no suggestion of sympathetic ophthalmia. When last seen the cataract was fully developed and an extraction was advised, which the patient says he will have sometime this summer.

#### LENS EXTRACT (MULFORD) NOT ACCEPTABLE FOR N. N. R.

The Council on Pharmacy and Chemistry reports that Lens Extract, marketed by the H. K. Mulford Co., is stated to be "A sterile solution of the protein from the eye lens of cattle, standardized to contain 2 per cent protein with 0.5 per cent phenol added as a preservative." The product is based on the work of Dr. A. Edward Davis and has been under considera-

tion by the Council since 1924. A review of the available evidence and the advice of the Council's consultants indicated that not only is there no evidence that the substance is beneficial but that, being useless, the employment of lens extract in the treatment of cataracts is likely to result indirectly in harm to the patient suffering from the disease. The Council therefore declared Lens Extract (Mulford) unacceptable for New and Non-official Remedies. (Jour. A. M. A., June 9, 1928, p. 1871.)

## THYROID DISEASE REQUIRING SURGERY\*

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ONE hundred years ago, exophthalmic goiter was first described by Parry, and a few years later by Graves. It was not more than half a century ago that important writings appeared on the subject. No doubt thyroid disease was as prevalent in the past centuries as at the present time, and, if this be true, an untold amount of suffering is spared by the present-day method of treatment.

The pioneers who blazed the trail in thyroid surgery found no signposts or guides to follow. They were like the mariner sailing the unknown seas without a compass. There were uncertainties connected with the work and their paths were beset by many obstacles. They were in doubt as to the cause of the complaint, and they were not agreed about any special form of treatment. From surgery there was a mortality of from 20 to 30 per cent. The severe post-operative crises, the dyspnea and collapse of the trachea following surgical procedure, and, often, myxedema, tetany, or death discouraged all but the bold and those who had the courage of their convictions. It drove many surgeons into less hazardous undertakings. Other means, less dangerous, were sought. Diet, rest, electricity, massage, and x-ray have had their advocates, but most of these methods have been found wanting.

Because of the frequent and apparent relationship between thyroid disease and impaired functions of other organs of the body often presenting pronounced and dangerous symptoms, an intensive study was undertaken all over the world. Research workers, clinicians, and surgeons endeavored to solve this enigma. They tried:

1. To determine the cause of goiter and how to prevent it.
2. To learn the inter-relationship of the thyroid and other organs of the body.
3. To chart the symptoms so as to make a diagnosis less difficult.
4. To formulate some satisfactory classification.

5. To establish a definite form of treatment.
6. To select cases best treated by surgery and to adopt a safe and satisfactory operative technique.

It was known that iodine was a constituent of the thyroid and that the disease was more prevalent where this element was absent from the food or water.

Trusseau discovered by accident in 1863 that iodine had a very beneficial effect on a case of exophthalmic goiter. The heart, which was very rapid, became slower in action, and the pronounced nervous symptoms greatly improved. This discovery was not followed up by the profession and was lost sight of for a time.

Marine and Kimball<sup>1</sup> tried out the use of iodine as a preventive measure in the school children of Akron, Ohio. It was noted that small quantities of iodine in young children had no bad effect even on small colloid goiters, and it seemed to prevent the development of the disease in later life. These experiments were followed up by other clinicians with similar results, so that the profession has for several years recommended the use of iodine in young children in small quantities as a preventive measure. It has been shown, however, that the injudicious use of iodine in older people with adenomatous goiter is occasionally followed by hyperthyroidism.

In operating severe exophthalmic goiters, new methods were devised to lessen the reaction. The striking results obtained in successful operations and the amelioration of the symptoms in other cases began to encourage the surgeons to follow up this form of treatment. Crile worked out a scientific psychological plan in which ligation was practised one or more times preliminary to a more extensive operation for the removal of part or the major portion of the gland. Other operators employed similar methods. There was a more careful selection of cases thereafter and crises following operations became less prevalent. The metabolic rate was found to be a fairly reliable guide in determining how serious the toxemia was.

\*Read before the Hennepin County Medical Society, Minneapolis, Minnesota, Dec. 5, 1927.

The greatest advancement in the treatment of thyroid disease was made after Plummer's report<sup>2</sup> in 1922. He recommended iodine in exophthalmic cases as a preliminary treatment to operation. His plan was immediately adopted by the surgical profession and the results have been marvelous. The metabolic rate and pulse become lower, the patients go to the operating room in a much less frightened and nervous state, they endure the operation with less reaction, and a rapid improvement follows.

#### CLASSIFICATION

Some attempt has been made to classify thyroid disease: (1) grossly and clinically; (2) microscopically and pathologically; (3) chemically; and (4) physiologically. Inasmuch as there are multiple clinical symptoms in a case of disease of the thyroid, as there are often two or more forms of recognized change present in the same gland, and as one phase of the disease may merge into the other, it becomes difficult to make a distinct division that is satisfactory.

Plummer<sup>3</sup> has offered a simple classification which is quite generally adopted by the profession, namely:

1. Colloid goiter  
First stage hypertrophy and later colloid (occurring commonly in young girls at puberty)
2. Adenomatous goiter  
Without hyperthyroidism  
With hyperthyroidism
3. Exophthalmic goiter (Graves' or Basedow's disease)
4. Tuberculous, syphilitic, or malignant goiter

On the basis of the physiology, chemistry and pathology of the gland, disease disturbances may be classified, according to Marine,<sup>4</sup> as:

1. Thyroid insufficiencies
  - a. Simple goiter
  - b. Myxedema
2. Graves' disease

#### ETIOLOGY

Food lacking in vitamins is supposed to have some influence in the development of a perverted function of the gland. There are some physicians who claim that foci of infection may act as causative factors. This may be possible through interference with the normal function of the gland and related organs of the body.

Dr. O. Lanz<sup>5</sup> has emphasized the climate and environment in certain localities as having an influence on goiter and its development. For instance, hyperthyroidism is more often present in the goiters of Switzerland than in those of Holland.

#### PATHOLOGY

It has been suggested that the thyroid acts as a detoxicating agent for the blood, and in an unhealthy state of the gland there is a backing up of the toxins in the blood. This theory seems to be a sound one. It may be the lack of iodine in the thyroid that results in the diseased condition of the gland, which lessens the detoxicating power of the gland and allows toxic substances to accumulate in the blood, causing the grave general symptoms and producing greater pathological changes in the gland itself.

It is known that an innocent goiter may suddenly change into a toxic variety seemingly through some emotional shock, injury or intercurrent disease.

#### SYMPTOMS

Colloid goiters usually occur during adolescence, pregnancy and at menstruation. The enlargement of the neck is smooth and uniform unless adenomata are also present. Any symptoms are due to pressure.

Adenomatous goiters are usually asymmetrical and nodular and may cause pressure. The symptoms are insidious. The course is variable, often extending over many years. There may be a history of repeated attacks of hyperthyroidism.

In exophthalmic goiters, several of the following symptoms and findings may be present:

The onset is usually acute, continuous or characterized by periods of exacerbation and remission. Exophthalmos and tumor are frequently absent. There is usually loss of weight and strength. The quadriceps extensor muscle is weak, and climbing stairs is a difficult task. Nervousness and sleeplessness are present. A thrill or bruit is usually found. The appetite is often increased. Definite fine tremors of the hands and feet and quivering of other muscles are present at times. Tachycardia and rapid pulse is typical. The basal metabolism may be increased plus 15 to plus 90, and there is in-



creased surface temperature and excessive perspiration.

#### DIAGNOSIS

It is certain that thyroid disease does not escape the attention of the physician today as often as it did ten to twenty years ago. So much literature has been placed before the medical profession that no regular practitioner will escape the bombardment of these articles. Clinics have been held throughout the world, even in the rural districts, so that each physician is bound to hear of the importance of goiter, and many cases which he formerly treated and classified as cardiac deficiencies or gastro-enteritis, he now investigates more thoroughly.

More cases are brought to the surgeon's attention in the first stages. Therefore, future statistics will, no doubt, show a much earlier operative treatment and, in consequence, a lower mortality rate.

Riggs,<sup>6</sup> as quoted by Ghent, has stated that some cases which he formerly treated for neurasthenia with palpitation, restlessness, and insomnia were really cases of toxic goiter.

The x-ray is useful in the diagnosis of an intrathoracic, substernal, or subclavian goiter, and it should be used if there is any question about the extent or location of the growth in any case. Calcareous deposits may be discovered by this method as well. It forearms the surgeon so that he is prepared for the contingency.

The substernal goiter is sometimes overlooked, especially when the gland is small and congenitally low. Severe symptoms may arise from its presence before the disease is recognized. Goiters may progressively descend and enter the mediastinum. The destruction of the tracheal rings may occur from prolonged pressure or calcareous deposits. When this happens, serious consequences may follow.

The metabolic rate should invariably be taken. An elevated reading between plus 20 and plus 90 may be obtained in the exophthalmic, but in the colloid or adenomatous type without toxic symptoms, the rate is usually normal. Evidently some of these latter are latent hyperthyroid cases as observed in a recent one of my own where there was a sudden rise from plus .03 to plus 37 eight days after operation, showing a definite reaction.

A carcinoma may be suspected where the usual

symptoms are absent, and where there is an ulceration or discharge into the trachea with pain and some odor. The gland is hard and irregular, but small. An abscess may have formed from infection.

#### PRELIMINARY TREATMENT

For nearly a century iodine has been employed in the treatment of thyroid disease. It has been used internally and externally and in every form possible, but in uncertain doses. No doubt, it has often been of great benefit without much scientific foundation for its use.

When the benefits of Lugol's solution were demonstrated as a preliminary treatment before operation for exophthalmic goiter, a right-about-face was executed and surgeons began to discard ligations for a complete operation.

Bliss<sup>7</sup> states that:

"Colloid goiters in adults are benefited by iodine, but the patient requires careful supervision.

"Benign adenomata are harmed by iodine and should be removed before they become toxic.

"Exophthalmic goiter requires both medical and surgical treatment.

"Digitalis is indicated only in auricular fibrillation or cardiac failure.

"And, as infection may play a rôle in goiter, the eradication of all known foci is indicated."

Blum<sup>8</sup> believes that iodine preparations may be beneficial in thyroid disease in which the gland still possesses the power of splitting off iodine from alkali iodides.

In an article in *The American Journal of the Medical Sciences* for January, 1927, Hoover<sup>9</sup> ridicules the present operative treatment for thyroid disease, and states: "It is extremely difficult to evaluate a treatment that is supposed only to ameliorate the symptoms of a disease that is self-limited and runs a course varying from six months to three years, and is subject to frequent remissions and exacerbations."

#### SURGERY

Toxic goiters have a definite action upon the heart and may cause a degeneration of the liver and kidneys, the brain and other organs if surgery is postponed too long.

Bartlett,<sup>10</sup> Welti,<sup>11</sup> and many others have emphasized the danger of operating on patients with pronounced toxic symptoms, especially those with cardiac decompensation, great loss of weight, severe gastro-intestinal symptoms and a high met-



abolic rate. Much of this advice we are now forced to disregard, as many of the severe symptoms subside under careful management. The assurance of relief that we can extend leads the patient to accept the operation often with pleasure, which is a great factor in the endurance of the operation and convalescence. In fact, goiter patients themselves are seeking the advice of physicians early as in other diseases. Fewer cases of exophthalmic or toxic goiter will be seen in the future, and perhaps the day will arrive when a plan will be found to positively prevent or cure the disease by some simple method, unless we discover that, as with tonsils, little or none of the thyroid is necessary in the human economy.

The question of operating upon foci of infection or complicating conditions previous to the thyroid operation is a debatable subject. Some advocate the removal of diseased tonsils previous to the thyroidectomy, but if the thyroid is the major complaint and is causing the greater discomfort, this should, no doubt, be attended to first. With a low basal rate, the clinical symptoms of thyroid disease moderately expressed, and with a preponderance of evidence in favor of a surgical disease elsewhere as the chief disturbance, the associated surgical disease should be operated upon first. The judgment of the experienced surgeon will usually settle this question correctly.

The indications for an operation on a large colloid or adenomatous thyroid may be: (1) for cosmetic effects; (2) for relief from pressure; (3) to forestall a beginning hyperthyroidism; (4) to prevent complications in other organs; and (5) to effect a cure before the symptoms become pronounced.

Elliott<sup>12</sup> says that hyperthyroidism is purely a surgical disease, and that a radical operation should be performed, as inadequate surgery often necessitates a second operation.

Richter<sup>13</sup> states that residual symptoms, which have their origin in diseased tissue of the thyroid remaining after an operation, indicate inadequate surgery.

Arnold Schwyzer<sup>14</sup> believes that colloid or exophthalmic disease may be present in the same gland, and it is of little benefit to remove the colloid nodes without removing the toxic or diseased tissue between them.

The judicious use of bromides, codeine, and

morphine for a day or so preceding the operation in a patient who has been taking a sufficient amount of Lugol's solution has its beneficial effect. The patient should be mentally and physically prepared for the operation. The time selected for operation in exophthalmic goiter is at the period of maximum improvement following the administration of Lugol's.

The operative risks are greater in children. Most adult cases can be operated with local anesthesia, and it is to be preferred when the patient is willing and there are no contraindications. A deep anesthesia is not advisable, but local with gas or ether analgesia may be practised. The anesthesia, however, should be wisely chosen, and carefully given.

It is a question how much gland tissue should be removed. Surgeons are becoming more radical of late and are removing more of the gland than formerly. This prevents recurrent symptoms when an excessive amount of the gland is allowed to remain. The gland should not be stripped completely from the trachea, and tracheal collapse should be anticipated.

#### TECHNIC OF OPERATION

Since 1912 the writer<sup>15</sup> has employed a type of operation which is done nearly as quickly as a ligation operation. Most of the cases, even before Lugol's solution was used, recovered completely and required no more surgical work, excepting those with pronounced symptoms where only one lobe was removed at a time.

The collar incision is the one usually employed. It is not always necessary to sever the sterno-hyoid and sterno-thyroid muscles, and rarely the sterno-cleido-mastoid. The muscles are separated perpendicularly in the midline in the average case of small goiter. When it is necessary to sever the muscles, special clamps are placed from without inward through a muscle puncture wound. The handles of the clamps will be in the outer border of the field, thus giving a clearer field for the operation. (See illustration.)

The thyroid vessels are either clamped with flexible forceps or ligated at once and the necessary portion of the thyroid removed, leaving the posterior and part of the lateral capsule and a small portion of the glandular structure attached thereto. A double plain catgut No. 1 ligature is thrown around the superior and inferior vessels, including the remaining capsule and

small portion of thyroid tissue in the vicinity, and a continuous back and forth suture approximates the remaining capsule and, continued, closes the edges. In this way pressure is equally distributed and no undue cutting of sutures through the tissue occurs. I have continued with



Fig. 1. Illustrating (1) clamps placed from without inward across muscles, exposing thyroid, (2) control of blood supply at poles, and (3) method of suture. Note: Artist has left an excess of thyroid tissue and capsule.

practically the same operation since it was first used except that now the gland is more thoroughly removed.

The muscles are united with plain catgut and the skin with a subcutaneous chromic catgut No. 0 or fine dermal. There has been no unusual oozing or bleeding. Exudate has continued from one to five weeks. The wound heals very well, with a minimum amount of scar. The dressings are of sterile vaseline and gauze.

The use of heavy chromic catgut or nonabsorbable suture material may account for the prolonged drainage reported by some operators. Where the gland is too thoroughly stripped from the trachea or there is injury to the recurrent laryngeal nerve, an irritating cough or tracheitis is apt to follow and last for several months.

#### TREATMENT FOLLOWING THE OPERATION

A. The first three days following an operation upon an exophthalmic goiter is the most critical period. Upon recognizing the dangerous symptoms as they first appear and applying appropriate treatment often depends the success of the undertaking. The plan which we have used for some time is to administer Lugol's solution, bromides, and sometimes glucose solution by the bowel. If sufficient water cannot be given by mouth or bowel, hypodermoclysis is employed. Ice is applied to the head, neck and chest, and the electric fan is used to keep down the temperature. Further sedatives are used if required. Lugol's solution, water, and food are given by mouth as soon as tolerated. It is surprising how the most pronounced symptoms are thus controlled.

B. A tracheitis which follows some operations should be treated by inhalations of steam with tincture of benzoin compound or eucalyptus. Atropin is used to control excessive throat secretion.

C. Many surgeons use iodine over quite a period following an operation for exophthalmic goiter. It is certain that the reaction disappears sooner and a normal state is reached earlier by its use, but I believe it should be discontinued when its beneficial limit has been reached.

The patient should understand that the full benefits of the operation for toxic goiter are not experienced at once. He should take no stimulants or questionable foods. He should avoid worry, excitement and responsibility, take moderate regular exercise with periods of rest, remain in the open air as much as possible, and get the required amount of sleep. Thus the convalescence is progressive and satisfactory, and the cure is more certain.

#### STATISTICS

Broderson<sup>16</sup> reports a cure of 87.4 per cent by radical operation. Some authors have noted a marked decrease in the size of enlarged hearts after operation.

In an outline of 100 consecutive cases analyzed by Richter,<sup>17</sup> seventy-six were primary hyperplastic goiters and twenty-four secondary toxic adenomas. A normal rate was ultimately obtained in ninety-nine out of one hundred patients and they were all relieved of hyperthyroidism.

Elliott<sup>18</sup> reports a freedom from toxic symptoms in 93 per cent of the cases operated upon by Kanavel, Koch and Richter. In seven per cent there was a recurrence to some degree. None operated upon in the early stage had any evidence of permanent secondary pathological changes, but the late cases showed about 50 per cent change.

Jackson<sup>19</sup> reports 92 per cent of cases cured after operation in a series of 120 cases. The average basal metabolism in these cases on admission was plus 46, after taking Lugol's plus 30, and on discharge plus 5. The average loss of weight was 23 pounds, and the gain of weight in from one to twenty-four months after operation was 21 pounds. The average pulse on admission was 120, and on discharge 79.

Fahrni's<sup>20</sup> percentages in 320 thyroidectomies were: exophthalmic 55.93, large colloid nodular 3.75, toxic adenoma 30, cystic 3.75, large adenomata 6.35, and carcinoma 0.31. There were eight recurrences in cases that had been operated upon from one to twelve years previously.

Richter<sup>21</sup> reports some parathyroid damage in 14 per cent of cases operated with the possibility of tetany arising in some of these individuals. This latent possibility he controls by changes in the intestinal flora and special diet.

Helmholz<sup>22</sup> reports thirty-six cases of exophthalmic goiter in children under fourteen years of age at the Mayo Clinic during the years 1921 to 1926, inclusive. The symptoms were present from six to eight years. Three improved so rapidly under Lugol's that operation was unnecessary.

The results of an operation on a carcinoma of the thyroid gland are discouraging. Radium and deep x-ray, or the removal of the trachea if affected, may prolong life.

#### CONCLUSIONS

1. A complete understanding of the thyroid gland has not yet been reached.
2. It is believed that thyroid disease may often be prevented by the use of proper food and water containing the necessary amount of iodine in childhood.
3. Many heart disorders, gastro-intestinal disturbances, and neuro-muscular complaints have been traced to hyperthyroidism.
4. The profession has reversed itself in the

management of surgical thyroid cases in the last five years.

5. It has been recently demonstrated that iodine, best in the form of Lugol's solution, tones down nearly all the severe symptoms of an exophthalmic goiter.

6. The preliminary use of Lugol's has made the ligation operation unnecessary and the surgical work safe with 90 per cent of cures.

7. Nearly all forms of treatment other than surgery have been discarded for the present by the profession in exophthalmic goiter.

8. Surgeons as well as patients no longer fear disastrous results from the operation.

9. All forms of thyroid disease present in adult life may be considered surgical at the present time.

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#### IODINE COMPOUNDS AND THE THYROID

Experiments have been made recently to determine quantitatively the rates at which the hyperplastic thyroid gland of the dog selectively absorbs various iodine compounds. From this study it may be concluded that in practice iodide iodine is of chief pharmacologic significance in altering thyroid secretion. There appears to be little experimental basis for the use of free iodine, even if loosely linked with iodides, as in compound solution of iodine, in the treatment of patients with various types of goiter. (*Jour. A. M. A.*, June 23, 1928, p. 2024.)

#### THE ANTERIOR LOBE OF THE HYPOPHYSIS

In 1921, Evans and Long demonstrated specific endocrine effects, such as gigantism and sex disturbance from parenteral dosage of mammals with beef anterior hypophysis after failure in a long series of massive oral administrations. Putnam, Teel and Benedict have prepared a sterilized extract of the anterior lobe of the hypophysis that has been used in animals with the production of changes which appear to be specific. It serves to repair some and perhaps all of the disabilities produced by hypophysectomy. The extract has been used in one human case of pituitary insufficiency, apparently with temporary benefit. (*Jour. A. M. A.*, June 2, 1928, p. 1791.)

## DIET IN THE TREATMENT OF DYSPEPSIA\*

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IT is my purpose here to relate something of my personal experience and opinions regarding the use of diets in the management of dyspepsia and to state what, in my belief, is the most important function of a department of dietetics. Presumably Hippocrates met with food faddists among his patients and possibly among his fellow practitioners, because he wrote as follows: "A slender and restricted diet is always dangerous in chronic diseases and also in acute diseases when it is not requisite. In a restricted diet patients who transgress are thereby more hurt, for every transgression, whatever it may be, is followed by greater consequences than in a diet that is somewhat more generous. Something must be conceded to habit, to season, to country and to age." The idea that most, if not all, illness is due to faulty diet is as old as recorded medicine, and that will-o'-the-wisp of the hopeful imagination, an ideal diet, has been ardently pursued through succeeding centuries.

Within the last two or three decades several factors have contributed to increased curiosity regarding diets: the successful efforts of federal and local health organizations in securing a purer water supply, safer distribution of milk, and cleaner marketing of food products in general, were unfortunately associated with what many believe to have been meddlesome and disquieting inquiries into quite harmless and efficient methods of food preservation, for example, the use of benzoate of soda in canning. Improved transportation by land and sea has introduced a greater variety of foodstuff. The urbanization of the population has created a greater demand for methods of preservation by refrigeration or otherwise. Increasing prosperity permits wider selection. Finally, the last thirty years has witnessed the birth and infant development of the science of nutrition. The scientist has usually been conservative in applying the results of his laboratory investigation, but with so many reasons for public interest in diet it is not remarkable that pharmaceutical firms, publishing houses

and the lay press have gallantly undertaken the education of the physician and his patients. I suspect that sometimes attempts have been made to utilize information before it became available. Yeast, oranges and cod liver oil have, through skilled commercial advertising, captured popular imagination. In the up-to-date household the mystery of the radio is being supplanted by the romance of the vitamins. Both are used in telling bedtime stories. So long as these reasons for interest in diet have led to good advice regarding what should be eaten, I have no criticism, providing an unreasonable economic burden is not placed on the bread-winner. When, however, restrictions are imposed I believe that the authority for such restrictions should be examined carefully. Instinctive selection of food has always afforded reasonable protection to such members of the race as merited survival. The food restrictions imposed during the War happily never amounted to hardship, but they did engender a pleasurable sense of conscious virtue, and the habit of doing without something that isn't liked anyway has persisted. Whether the national tendency toward prohibitive legislation can be attributed to the War is questionable, but it is undoubtedly true that the word "don't" is steadily growing in popular usage over the word "do." It is perhaps fortunate for the health of the nation that the average American citizen is still free, with respect to food at least, to use his own judgment, in deciding the quantity and quality of that which he consumes.

The known criteria of an efficient diet are simple. There must be sufficient calories to supply energy, the protein must be qualitatively as well as quantitatively adequate, the carbohydrate fat ratio must fall within certain limits and inorganic salts and vitamins must be safeguarded. Most citizens living at a satisfactory economic level are amply protected, unless through bad advice they delete something. It has been definitely shown that meat proteins are more efficient than vegetable proteins and that the widespread idea that meat is harmful has no basis. The term nitrogen balance has experimental signifi-

\*From the Division of Medicine, The Mayo Clinic, Rochester, Minnesota. Read before the American Gastro-enterologic Association, Washington, D. C., April 30 to May 1, 1928.



cance, but no clinical application in the treatment of dyspepsia.

How, then, may diets be faulty? First, there may be calorie excess. I know of no disease other than obesity that can be attributed to calorie excess. The frequently repeated dictum that everyone eats too much may be true, but it still awaits scientific confirmation. Second, there may be a relative excess of one important element, but here it will be found that it is not really the excess that causes disease but the complementary deficiency of other constituents. Keeton† observed the development of pellagra in a patient who was being treated for epilepsy by a high-fat, low-carbohydrate ("ketogenic") diet. The pellagrous manifestations promptly disappeared following the administration of meat protein. Pellagra developed in another patient following a series of alcoholic sprees, not because of the alcohol but because of starvation with respect to meat. In actual practice absolute vitamin deficiencies producing beriberi or scurvy are extremely rare, but there is little doubt that relative deficiency gives rise to bodily discomfort, an impaired sense of well-being and lowered resistance to infection. That relative deficiency in diet impairs health is admittedly difficult to prove by any strictly scientific measurement, but the clinical evidence of improvement in health following the removal of restriction is convincing.

The common organic diseases associated with dyspepsia are carcinoma of the stomach, appendicitis, cholecystitis and peptic ulcer. Attempts have been made from time to time to bring dietary excess or deficiency into etiologic relationship with each of these. For one who is keenly interested in such diseases the temptation to elaborate theories of causation may be irresistible, but after carefully separating fact from fancy one is forced to the conclusion that there is scant evidence that too much or too little of good, bad or indifferent food can be blamed. Recent studies indicate that in some instances of cholelithic disease there is a disturbance of cholesterol metabolism, particularly in pregnancy. One must emphasize, however, that the alleged fault is metabolic rather than dietary.

In the palliative medical treatment of carcinoma of the stomach the chemical constituents of the diet are unimportant. Here the physical properties of the diet only are concerned, and

then only to avoid mechanical irritation or obstruction. Temporary restriction in diet may be indicated during acute attacks of appendicitis or cholecystitis, but any attempt to treat persistent dyspepsia arising from either disease is hardly fair, since the patient is thus denied the benefits of skillful surgery. Diet is an important factor in the medical management of peptic ulcer but it has always seemed to me that there has been a tendency to overemphasize the value of special kinds of diets in the treatment of ulcer. Apart from the general principles that a diet must be chemically and mechanically non-irritating, that it will neutralize hydrochloric acid and satisfy the calorie, vitamin and inorganic salt requirements of the body, what difference does it make whether butter or olive oil, string beans or green peas, lamb chops or beef tenderloin are used? I believe that Sippy's great contribution to the medical management of peptic ulcer is found in the scrupulous ritual which he developed in his wards and in the machine-like precision with which he secured daily information in regard to the progress of his patients. Frequent feedings and alkalies had been used before but never with the intensive supervision instituted by this masterful clinician. I confess that I can see no departure in principle in the treatment of ulcer in the diets of those who imitate Sippy while appearing to disagree with him. There is one point in the medical treatment of ulcer which has been most difficult to determine: When should the patient resume a normal diet, that is, a diet such as is used by the remainder of the household? There can be no question of the desirability of fixing such a time definitely. Even though the diet used in ambulatory treatment may be balanced, it is monotonous, but more important is the fact that dietary restriction in itself imposes a psychic disability which may reduce a patient's economic efficiency as greatly and as certainly as did the ulcer for which the restriction was imposed. It is true that most patients will try out a more liberal diet, but they may do this with their psychic inhibition unrelieved and the question must arise of how long there is justification of keeping a patient in a state of apprehension. The same question arises in the after-care following surgical measures applied for the relief of the ulcer type of dyspepsia. Recently a writer advocated keeping a patient on a strict medical regimen for three years.

†Personal communication to the author.

I know from experience that such restriction is not necessary and I doubt the wisdom of such an imposition, and question the right of physicians to alarm when reassurance is not only warranted but clearly indicated. Personally, I would prefer to have a patient return to a normal diet three months after gastro-enterostomy or after symptoms disappear on any kind of medical treatment. Certainly six months of restriction is preferable to three years.

It is in the dietary management of the so-called functional dyspepsias, however, that abuses and absurdities most often creep in. In this group are cases of constipation, flatulence, migraine, aërophagia, mucous colitis, generalized abdominal discomfort and, above all, fear of serious organic disease. None of the organic diseases produces more persistent discomfort, and no dyspepsia is more worthy of skillful treatment or imposes greater demands on the experience, patience, tact and sympathy of the physician. The predominant feature in all such patients is fear, and it is necessary to overcome this fear and to restore confidence. To do this it is necessary to supplement a painstaking history by a thorough general and roentgenologic examination. Organic disease of the digestive tract must be ruled out with reasonable certainty, and, if possible, any complex which may have played havoc with the mental hygiene must be disclosed. I do not mean to advocate psychoanalysis other than to make use of the everyday knowledge of human nature and human behavior which the discerning physician possesses. A childless marriage, a cheerless spinsterhood, business failure, sleeplessness, family illness, or any one of a thousand environmental disharmonies may result in disordered function of the digestive tract. Fatigue of skeletal muscles has its counterpart in fatigue of the digestive motor apparatus. Anxiety exceeds gastric ulcer as a cause of dyspepsia. Many patients are promptly relieved when an adequate cause for their anxiety is revealed. Another factor in treatment is to restore the patient's confidence in his ability to eat the same food that others eat. He is accordingly placed on a diet which makes no claim to eccentricity. It need not be smooth or rough, or contain an excess of vegetables, bulk, fat, buttermilk or bran. The diet must be one which is easily available in his home, which will not impose an economic burden, and which will contain the ele-

ments of a balanced diet. Often these patients have been submitted to the most amazing restrictions. This is largely because each succeeding physician consulted has deleted a few foods. One such patient, a sufferer from migraine, has been reduced to rice boiled in water and eaten without milk or sugar. His attacks became infrequent when the character of his malady was explained and he resumed a full diet. A little philosophy and reassurance enabled him to return to full activity.

While dietary restrictions may result in relative vitamin or other deficiency, I am convinced that the deleterious effect of restriction on the patient's morale is of equal or greater consequence. It is quite impossible to place any patient on qualitative restrictions without inducing disability, at first mental, although it will promptly reveal itself in physical retardation and impaired initiative. It may be objected that some patients report benefit on eccentric diets and this is very true. I have known certain persons to stick to acidophilus milk, or bran, or a smooth diet, or even goat's milk with almost religious fervor. They were using them in the same way as the hysterically palsied use crutches and canes as an excuse for inadequacy.

In the reëducation of the victim of functional dyspepsia it is a great advantage to have him under observation for three or four days or until his confidence is restored. During this time the trained dietitian is most useful. The problem may be compared to teaching a prospective driver to manage a motor car. While agencies supply purchasers with pamphlets explaining the details of operating automobiles, disaster may sometimes be avoided and assurance more quickly acquired if a tactful and discreet supervisor lends moral support. The chief merit of this plan of treatment in functional dyspepsia is that it works. Suggestion may be used or it may be necessary to use blunting drugs temporarily to control sleeplessness and to treat the habit of anxiety, but the essence of management is the restoration of confidence. A diet should never be used as a narcotic.

I have attempted to indicate that the management of dyspepsia depends on accurate and comprehensive diagnosis, that diet has a limited application in treatment, and that unwarranted restrictions in diet or the use of eccentric diets may be harmful.

## THE CONDITION OF LOWERED METABOLISM\*

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THE ideas herein discussed are derived from a consideration of 785 individuals with basal metabolic rates of  $-10$  and lower, occurring in 2,500 consecutive determinations on all types of patients. All of the determinations were made on ambulatory patients, from March, 1921, to the present date. During the first two years the rates were determined with a Tissot gasometer and analysis of the expired air in a Haldane apparatus, and for the past three years a Roth-Benedict apparatus has been used. One technician did practically all of the former tests, and another has done all of those with the present apparatus.

The factors which affect the basal metabolic rate of an individual are:

*Physical:* Exertion, which raises the rate.

*Mental:* Fear or excitement, which raises the rate.

*Food:* Food intake raises the rate. Fat, carbohydrate, protein each have varying degrees of specific dynamic activity.

*Temperature:* An elevation of the subject's temperature by one degree will raise the metabolic rate ten per cent. The effect of external temperature, although variable, is also a factor.

*Growth:* In children, the rate is relatively higher per unit of surface area than in adults, due to the metabolic requirements of growth.

*Pregnancy:* Does not actually affect the rate of the mother herself, the rise seen in pregnant women just before delivery being due to the growth of the fetus.

*Menstruation:* Does not affect the rate except when accompanied by pain or discomfort.

*Common Drugs:* Do not affect the rate except caffeine in large, almost toxic quantities, and morphine if sleep is induced thereby.

*Glandular Preparations:* (Except thyroid) adrenalin and insulin only.

Leukemia is constantly accompanied by a high rate, and pernicious anemia inconstantly.

Any other disease affects the rate only secondarily (such as dyspnea in asthma and cardiac

cases, edema in renal cases, cachexia in malignant cases, or fever in any febrile condition), but in these instances, obviously, basal standard conditions do not exist.

It would seem to be apparent, then, that any deviation from the normal (the above conditions excepted), when a standard basal state exists, must be due to thyroid influence. In other words, a high metabolic rate indicates hyperfunction of the thyroid gland, and a rate lower than normal means diminished activity of that gland. In spite of this fact, however, clinicians in general seem reluctant to attach a diagnosis of hypothyroidism to a patient with a low rate. Furthermore, the clinical indications of the presence of a low rate are many times overlooked. Cases of frank myxedema are, of course, readily diagnosed, even without the basal metabolic rate, but there are many individuals whose symptoms should suggest a sluggish metabolism, and to whom the administration of thyroid preparations would be of striking benefit. It is with these ideas in mind that the following analysis of the cases of low metabolic rate was undertaken.

The cases which were diagnosed myxedema, because of outstanding clinical evidence, were eliminated outright. They constituted 20 per cent of the total number. This number was not analyzed further, inasmuch as the diagnosis of myxedema can now be made without difficulty; it need only be said that the rate did not always exactly conform with the clinical manifestations of the disease.

Fifteen per cent of the low metabolic rates found were associated with other conditions, largely neurological, such as (1) anxiety neurosis; (2) encephalitis; (3) chorea; (4) manic depressive insanity; and finally (5) with a few general conditions, such as Addison's disease, hypertension (arteriosclerotic) and Glenard's complex.

Sixty-five per cent of the cases were hypothyroid divided among classes as follows: (1) hypothyroidism (early or mild myxedema); (2) goiter (including the colloid type in young indi-

\*From the Department of Medicine, The Nicollet Clinic, Minneapolis. Read before the Hennepin County Medical Society, April 2, 1928.

viduals and the non-toxic degenerating adenomata in older people); (3) endogenous obesity; (4) glandular deficiencies, such as sterility, menopause, cretinism, pituitary tumor, pituitary deficiency and amenorrhea. This last class had low rates from secondary involvement of the thyroid.

In order, then, to arrive at some idea of the outstanding symptoms of the subjects with these low rates, the records of this 65 per cent (510 cases) were carefully analyzed. The symptom complex which finally presented itself was as follows, in the order of frequency of complaints:

1. Fatigue, weakness or drowsiness (the most common complaint).
2. Goiter (28 per cent actually had a goiter).
3. Generalized pains and joint pains (often suggesting a focal case, or a neuritis, like diabetes or tabes).
4. Constipation (usually not reacting to the present fad for bulky diets).
5. Stomach trouble of indefinite nature, probably often meaning constipation (a certain number had an achylia).
6. Overweight (not, as you see, the outstanding complaint; some in fact were actually underweight).
7. Nervousness (usually a depressive, anxious, apprehensive state).
8. Menstrual difficulties (most commonly amenorrhea or scanty menses, skipped menses, sterility and frequent miscarriages).

There were various other complaints of an indefinite, functional, or neurotic nature, such as "heart trouble," headache, dizzy spells, choking spells, and some of a more definite and significant import, such as melancholia, insomnia and skin eruptions.

Several interesting observations were made, as, for instance, the occurrence of gonadal abnormalities, on the basis of a study of a series of 137 females of low basal metabolic rate, not including myxedema, which had sufficient data to warrant a study of sexual function. These cases were divided as follows: married 78; single 72. Actual sterility was present in 45 per cent of the 78 married females. In addition, there were 15 cases of relative sterility, or cases presenting abnormalities: (1) no living children, but one or more stillbirths, miscarriages, or abortions (6 cases); (2) one or more living children, but also one or more stillbirths, abortions, or miscarriages (9 cases). Sterility, then, occurred in 56 per

cent of this series of cases. Sterility occurs, I believe, in about 13 per cent of the white women of the United States.<sup>12</sup> Forty-four per cent of the total number had menstrual difficulties, such as amenorrhea, irregularity, menorrhagia, metrorrhagia, scanty flow. There was no pelvic disease in any of these cases to explain the symptoms. The actual physical signs were not typical of a low rate—the classical signs of frank myxedema were usually lacking.

There was only one case in the total series in which the question was raised of the so-called "myxedema heart" and in only two others (one of which was noted as having a non-toxic adenoma) was any mention made of myocardial damage, not including cases of old age, arteriosclerosis, hypertension, etc., in which myocarditis might be present.

The findings of anemia and low blood pressure, excluding the actual myxedema cases, were extremely variable. The tendency was toward a moderate degree of anemia and low blood pressure, but there were enough cases of high blood pressure and of normal or high blood count to make averages misleading. The body weight of the total series was about average—some were distinctly overweight, and others were definitely underweight. The pulse rates ran uniformly from normal to slow; that is, from 80 down to 50. The temperatures at the time of the test were usually subnormal.

As to the actual figures of the metabolic readings, they varied from  $-10$  to  $-38$ , most of the rates falling between  $-15$  and  $-20$ . From a consideration of certain other cases falling above the lower limit of  $-10$ , namely those from  $-5$  to  $-10$ , and taking into account the fact that there are more factors raising the rate than lowering it, I am almost inclined to recommend that for ambulatory tests the limits might be set from  $+15$  to  $-5$  instead of  $\pm 10$ . However, that is a separate problem. The diagnosis of hypothyroidism would seem to rest, then, upon the symptoms as given, plus a lowered basal metabolic rate.

#### DISCUSSION

Boothby and Sandiford<sup>1</sup> found in one series of 1,642 cases of other than thyroid dysfunction, that 74 per cent were  $\pm 10$  and 89 per cent were  $\pm 15$ , and in a subsequent series of 2,417 similar cases, 77 per cent were  $\pm 10$  and 90 per cent were



$\pm 15$ . In other words, a normal rate is the rule in any case which has no thyroid dysfunction and should lead to the opinion that a low rate means hypofunction just as much as a high rate means hyperfunction. The majority of low rates in these series was most apparent in cases of very probable undernourishment (diagnosis given as dysphagia, malignancy and epilepsy) and a few were evident in other glandular dystrophies, such as hypopituitarism and Addison's disease. Means<sup>2</sup> has stated that "if such conditions as starvation, hypopituitarism, hyposuprarenalism are excluded, a low basal metabolic rate is strong presumptive evidence of hypothyroidism."

J. T. King<sup>3</sup> has reported a series of 36 cases of low basal metabolic rate with a distribution of diagnosis very similar to the series herewith reported. He found that, next to myxedema, the low rates were most commonly found in colloid goiter cases, but points out the importance of rates between  $-15$  and  $-20$ , the symptoms already mentioned often appearing in these cases.

Ohler and Ullian,<sup>4</sup> in a study of 1,000 cases in which basal metabolic studies were done, mentioned the fact that most simple colloid goiters had low rates, and in 88 so-called borderline hypothyroid cases, found that the symptoms of weakness, dry skin, susceptibility to cold and slow mentality were practically constant.

In our series, 28 per cent of the total number had colloid or colloid-adenomatous goiters.

Barach and Draper<sup>5</sup> conclude, from an analysis of 500 determinations, that hypothyroidism in the absence of clinical myxedema warrants further consideration. They found that fatigue was the constant symptom in these patients, together with sensitivity to cold, skin and hair dryness, drowsiness and mental changes. Sturgis<sup>6</sup> presents essentially the same conclusions, based on 15 cases, as does Dowden<sup>7</sup> on 37 cases.

It is therefore evident, from a consideration of the factors which are known to affect the basal metabolic rate, that the thyroid must be given first consideration. From a study of patients upon whom basal metabolic rate determinations have resulted in low readings, it is also apparent that hypofunction of the thyroid gland is in the majority of cases responsible for such an abnormally depressed rate. Apart from those cases presenting outstanding characteristic symptoms of myxedema, all cases having any of the follow-

ing signs or symptoms, not explicable upon any other ground, should have a basal metabolic rate determination made: fatigue; weakness; drowsiness; mental inertia; generalized, shifting bodily pains; constipation; overweight; dry skin, and dry and falling hair; sensitivity to cold; sterility; goiter; and, in the female, amenorrhea or scanty menstruation; and, finally, any patients with stigmata of glandular deficiencies or obesity.

If a low basal rate is obtained in any cases so investigated, a diagnosis of hypothyroidism is justified, and the administration of thyroid substance is warranted as part, at least, of the therapeutic regime.

It is difficult to speak about any glandular product without running the risk of being misunderstood. However, it is generally conceded that the administration of thyroid substance does give results, whatever may be said of other glandular products. It is also the opinion of most investigators that the glands of internal secretion are interrelated as to function (Marine<sup>8</sup>). Therefore, in any case which shows definite signs of deficient function of glandular mechanism, not explicable by any demonstrable local pathology, in which a low basal metabolic rate is found, the administration of thyroid substance may be considered beneficial. This has actually been our experience in the series studied, quite striking at times in those cases of amenorrhea, scanty and irregular menses and sterility. In obesity, likewise, although in the majority of cases it is found to be of the exogenous type (Means<sup>9</sup>), there are cases which show low basal metabolic rates, and these endogenous types can be helped in their efforts toward weight reduction by the administration of thyroid substance (Means<sup>10</sup>; McKinlay<sup>11</sup>). Certain disturbances of the menopause can be relieved by thyroid, if a low basal metabolic rate indicates its use. The same can be said of a few cases of acne, dry eczema and ichthyosis.

In conclusion, then, I wish to repeat for the sake of emphasis that the cases which have presented the symptoms mentioned as most commonly found accompanying a low basal metabolic rate can with justification be diagnosed as hypothyroidism, and treated accordingly. It was with the hope of stimulating interest in the subject of diminished metabolism in certain types of pa-



tients that the above analysis was made and the results reported.  
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## GIANT-CELL TUMOR OF THE UPPER END OF THE FEMUR: REPORT OF THREE CASES\*

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OUT of the haze that for years has surrounded sarcoma of bone a clear-cut entity, the giant-cell tumor, generally accorded benign, has gradually emerged. Pathologists are agreed that the giant cell typical of this tumor has definite characteristics that set it apart from the giant cells of rapidly growing malignant tumors and the so-called foreign body giant cell in tuberculous lesions, gummas and surrounding foreign material. In the giant-cell of the tumor the nuclei stand out distinctly and their size and distribution within the cell are uniform. The reported cases in which metastasis and death have resulted from a giant-cell tumor have probably been wrongly diagnosed, because of failure to differentiate the type of cell. In these borderline cases only the pathologist skilled in the microscopic study of bone tumors can distinguish the type; the clinician must therefore seek his aid.

A definite diagnosis of giant-cell tumor should not be made in any atypical case without exploration and examination of the tissue by a pathologist competent to recognize the cells. Whereas in years gone by many radical operations were performed needlessly, there is danger that, with the increasing dissemination of the knowledge that these tumors are benign, patients will be treated conservatively who should be treated radically. The present-day interpretation of the term giant-cell tumor includes tumors that were formerly listed under the terms giant-cell sarcoma, giant-cell sarcoma of the epulis type, hemorrhagic osteomyelitis, and myeloma, the last a British term which is still being used. The confusion that exists is well shown in the statement by Kolodny, who says that there have been hundreds of cases of giant-cell tumor reported as sarcoma to the Registry of Bone Sarcoma by clinicians and pathologists from all sections of the country.

There are two divergent views regarding the origin of these tumors, one that they are blasto-

matous, and the other that they are inflammatory. For the safety of the patient, it would probably be better to continue to consider them as of blastomatous origin until further proof of their inflammatory nature is brought forth. Trauma has been stressed as an etiologic factor. Coley recorded that in 56 per cent of his cases there was a history of trauma. Meyerding found that in 54 per cent of the series in the Mayo Clinic there was a history of trauma. He believes that it is difficult to accept trauma alone as a cause, granting, however, that trauma may form the necessary stimulus for the development of such a tumor in a given area. He called attention to the fact that in the jaw, where foci of infection so commonly exist, and where trauma during mastication is so likely to occur, benign giant-cell tumors of the epulis type are common. During the period in which he observed the series in the Mayo Clinic, twenty-four giant-cell tumors of the long bones, and sixty-five giant-cell tumors of the epulis type in the jaw were operated on. Meyerding believes that there is a close relationship between osteitis fibrosa cystica and giant-cell tumor. Trauma is an etiologic factor which must be taken into account. The appearance of the material within the tumors suggests that hemorrhage, and later vascularized tissue, with maintained pressure within the bone similar to that of an aneurysm, is a factor in the destruction of bone. The fact that the tumors are so often found in the spongiosa further suggests intramedullary hemorrhage as the primary cause.

Kolodny reported from the Registry of Bone Sarcoma that the incidence of this type of tumor as compared to sarcoma was one to two, but that this was probably too high an estimate. In my experience the incidence has certainly been less. The tumors are rare in children and in the aged, and are equally divided as to sex. They are slow of growth and rarely cause much discomfort, and thus may reach great size. Occasionally, fracture is the symptom that impels the patient to seek advice. The tumors occur

\*From the section on Orthopedic Surgery, Mayo Clinic. Read before the Minnesota Academy of Medicine, St. Paul, Minnesota, April 11, 1928.

usually in the long bones; they are most common in the lower extremities, and ordinarily are found in the lower end of the femur. In the cases reported by Meyerding, the lower end of the femur was involved in eight, the proximal end of the tibia in seven, the proximal end of the femur in one, the lower end of the radius in two, the distal end of the ulna in one, the proximal end of the humerus in three, the middle third of the humerus in one and the eighth rib in one.

The tumor may be easily seen and palpated and may destroy the condyle entirely if it is in the lower end of the femur, or if it is in the head of the tibia it may cause such great destruction that the only recourse is amputation. The tumor may rarely be cortical or subperiosteal. The engorged veins of the skin may be present, although they are not usually as large as those seen in sarcoma. Usually a giant-cell tumor starts from within the bone, is expansile rather than infiltrative, destroys bone steadily, and rarely perforates or involves the surrounding structures. Roentgenologic study is essential to determine these factors and must be carefully carried out. The mass, as stated, is almost always at the end of the bone. The shaft does not continue into the tumor as it does in sarcoma, but at the juncture of the tumor and the shaft there is a well developed shoulder. The leaf-like layers seen at the ends of the tumor in osteogenic sarcoma are not present. Irregular bony trabeculations will be seen in the wall of the tumor, due to shelf-like projections from the periphery toward the center. They serve as the framework, and the open areas between them are merely the periosteum and the periosseous structures, the tumor being retained within the capsule. The tumor may completely erode the spongiosa of the epiphysis and creep along the ligaments, and in the advanced cases all semblance in the film of the normal structure of the end of the bone may be lost. The tumor, however, remains sharply circumscribed, and held in by a thin shell of bone and fibrous tissue, the mass presenting in the roentgenogram a multicystic appearance due to the irregular ramifications of the bony trabeculae. It is in these advanced late cases that the differentiation of osteogenic sarcoma is difficult, but it must be remembered that an

osteogenic sarcoma of such size rarely remains encapsulated. Meyerding has pointed out that it is the ability to expand in all directions, finally perhaps dissecting along fascial or ligamentous planes but not actually invading those



Fig. 1. Case 1. Giant-cell tumor in upper end of the femur; symptoms had been present for seven months.

structures, that gives this tumor roentgen-ray characteristics unlike those of any other benign tumor.

At operation, the appearance of the tumor varies greatly, according to whether or not a tourniquet is used. If a tourniquet is not used in the vascular type, brisk hemorrhage will occur when the tumor is opened. The typical tumor contains a soft, vascular, frequently profusely bleeding material which may be readily scooped out. The older the tumor, the greater the cicatrization at the outer layers, and hence less tendency to hemorrhage. In these more mature tumors, the center may be cystic and contain fluid. When the finger is introduced, the trabeculations on the periphery can be felt; they rarely extend to the opposite side of the tumor. In the terminal stages there may be only fluid and a definite sac lining the interior of the tumor.

The three cases that I am presenting for discussion are interesting, first, because the site in the upper end of the femur is unusual, and, second, because each case represents a different phase in the development of these tumors. In this situation, no matter how great the destruc-

tion, amputation should not be considered, whereas when large tumors in the region of the knee joint have destroyed the weight-bearing area of the bone, amputation is usually indicated.

#### REPORT OF CASES

*Case 1.*—A girl aged eighteen was examined at the Mayo Clinic February 27, 1928. For seven months



Fig. 2. Case 1. Side walls of tumor crushed in.

she had had trouble with the left leg. She first noticed lack of normal movement, followed about one month later by pain in the left hip, and it was then that she began to limp. At first the pain was present only when she walked and was relieved by rest. Gradually it became worse, was present even at night, and extended below the knee. Roentgenograms were taken at the patient's home; a diagnosis was made of tuberculosis of the hip, and a cast was applied. This seemed only to increase the pain, and was removed two weeks before admission. The physician in charge stated that he was undecided as to the diagnosis, and the patient determined to seek further advice.

*Examination.*—General examination disclosed a rather anemic girl 5 feet 6 inches tall, weighing 111 pounds, 14 pounds below normal. Blood pressure and urine were normal and the Wassermann reaction was negative. The hemoglobin was 48 per cent, erythrocytes numbered 4,260,000, and the leukocytes, 3,700; the color index was 0.5; a differential count showed lymphocytes 34 per cent; there was slight anisocytosis and poikilocytosis. Foci of infection were not demonstrable. Movements of the left hip were good, except for

restriction of flexion and abduction at the extremes. Shortening was not demonstrable. Roentgenograms of the chest were negative. Roentgenograms of the pelvis and both hips showed a tumor involving the intertrochanteric area and extending a short distance into the shaft at the level of the lesser trochanter, the latter being involved in the tumor (Fig. 1). The bone had not increased in size appreciably, except that the lesser trochanter was enlarged.

*Operation.*—A longitudinal incision was made over

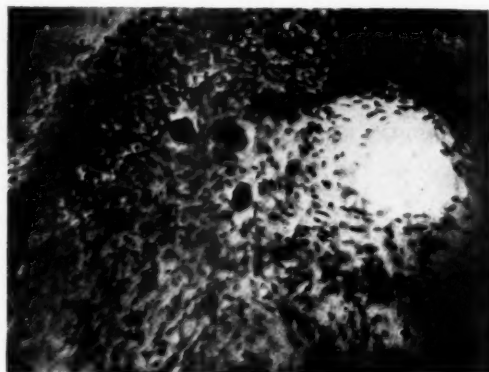


Fig. 3. Case 1. Giant-cell tumor.

the greater trochanter, and the bone was exposed and opened. The tumor was found to be from 10 to 12 cm. long, extending well up into the greater trochanter and shaft, and also into the lesser trochanter. The cavity was lined with a thin membrane, and filled with a red vascular material which resembled cranberry jelly. This material was easily curetted and the lining was removed as completely as possible. With a pair of strong rongeur forceps, the side walls of the structure were broken down and bent inward, in the hope of inducing osteogenesis and thus obliterating the cavity (Fig. 2). Some of the tissue was submitted to the pathologist at the time of operation, and reported to be typical giant-cell tumor (Fig. 3). The wound was closed without drainage and a plaster-of-Paris spica cast applied.

*Comment.*—The history of mild onset was typical, the complaint gradually increasing in severity until relief was sought. The destruction by the tumor was so great that there was danger of pathologic fracture unless support could be maintained. Operation was performed too recently to permit conclusions with regard to the functional result. The precaution was taken of having roentgenograms of the entire pelvis and of the chest made before the operation was performed to rule out the possibility of metastasis. Roentgen-ray treatment is to be given when the cast is removed.

*Case 2.*—A married woman aged thirty-nine was examined at the clinic July 9, 1923. Eight years previously while pregnant, she had fallen on the sidewalk and injured her left hip. Following delivery, she improved and had no more difficulty; a few years later, when she was again pregnant, the pain in the left hip returned. Two or three months before she was examined at the clinic, she again became pregnant, miscarried at two months. She had had some pain since, and complained of a feeling of insecurity in the hip.

ulation at the periphery. The lining was removed as thoroughly as possible, and several pieces which were sent to the laboratory were reported as due to a hemorrhagic bone cyst. The cavity was packed with several pieces of bone taken from the tibia as a graft. Since there appeared to be sufficient strength in the neck, I did not put the leg in a cast, much to my chagrin later. I insisted only that there should be no weight-bearing and that crutches should be used. One month later, while the patient was leaving the hospital

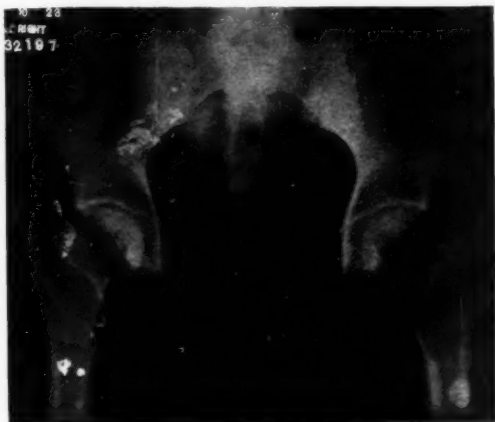


Fig. 4. Case 2. Large cystic giant-cell tumor involving trochanter and neck of the femur.

*Examination.*—The patient was somewhat obese, 5 feet and 6 inches tall and weighed 180 pounds. Enlargement in the region of the hip could be distinctly felt. There was some restriction of motion in the hip. She walked with a distinct limp. General examination was negative, except for a slight increase in blood pressure. The urine and blood were normal and the Wassermann reaction was negative. Four teeth showed evidence of periapical infection. The tonsils were small and fibrous, and had never given any trouble. A rather large congenital hemangioma of the right side of the face was of interest from the standpoint of the etiology of giant-cell tumor. A roentgenogram of the chest was negative, but a roentgenogram of the pelvis and both hips (Fig. 4) showed an extensive tumor in the upper end of the left femur, extending well up into the neck of the bone to the head, involving the whole trochanteric area and down a short distance into the shaft below the level of the lesser trochanter. A few long trabeculations were made out, but the tumor was well marked off by its osteoporotic character, the bone reached by the tumor being greatly thinned. A diagnosis of giant-cell tumor was made and exploration advised.

*Operation.*—At operation July 12, the lesion was found to be a smooth lined cyst, extending into and involving the neck of the trochanter and part of the shaft, as shown by the roentgenogram. It was filled with straw-colored fluid. There was very little trabec-



Fig. 5. Case 2. Same case as that shown in Figure 4, four and a half years later; disappearance of cyst from trochanter; head shows signs of involvement.

and about to step into a taxi, sudden severe pain occurred in the hip, and at the same time she felt something snap. Roentgenograms were taken at once, and disclosed fracture of the neck. The fracture was reduced by the Whitman method, and the leg put up in abduction. Fixation was maintained in a cast for ten months. While the patient was convalescent, the infected teeth were removed. A recent report from her physician states that she now does everything: walks, dances, scrubs the floor, and so forth, and to all intents and purposes there is union (Fig. 5). The roentgen ray showed that the cyst had disappeared but the head looked as if it were involved. There has been a great deal of absorption of the bone grafts, but I believe they served their purpose well.

*Comment.*—This, I believe, is an example of a giant-cell tumor in the late stage, in which all the soft tissue of the tumor had been destroyed and replaced by cystic clear fluid, enclosed by a smooth lining. The use of bone grafts and sustaining the fractured bone resulted in satisfactory union which I believe is bony. Of passing interest is the congenital hemangioma on the right side of the face. The patient had had trouble for at least eight years previous to coming to the clinic.



*Case 3.*—A woman aged twenty-four came to the clinic February 24, 1928. In the spring of 1921, she began to limp, favoring the left leg, but there was no definite pain. Later in the year she fell and was unable to get up. For ten days she was very uncomfortable but gradually recovered; the limp, however, was more marked. She consulted another physician and a roentgenogram was made, from which bone

suspicious-appearing area in the roof of the acetabulum.

*Comment.*—In this case the local recurrence occurred five years after operation. There was no evidence of metastasis. The hemoglobin was rather low and the patient appeared to be a little below par.



Fig. 6. Case 3. Giant-cell tumor involving upper part of shaft, greater trochanter, neck and head of femur.

cyst was diagnosed. Radium was applied on two occasions. A spica cast was worn for about a year, but the tumor (Fig. 6) increased in size and finally (at her home in 1923) the head and neck of the femur were removed. The surgeon sent some of the tissue to the Mayo Clinic for diagnosis, and Broders reported it to be giant-cell tumor. The wound healed by first intention, and the patient soon got about very nicely with a cane. About a month prior to examination at the clinic, the left thigh had swelled slightly and there was slight discharge of bloody material from the old incision.

*Examination.*—The patient walked with the aid of a crutch. The hip was hypermobile because of the resection of the head and neck. The left leg was 10 cm. shorter than the right. The hemoglobin was 55 per cent, and there was a trace of albumin in the urine. She had had tonsillitis. Roentgenograms of the teeth were negative, as were those of the chest. A roentgenogram (Fig. 7) of the upper end of the femur showed recurrence of the tumor. The patient was referred back to her former surgeon. I agreed with him that the recurrent growth should be excised and followed by roentgen-ray treatments. There was also a



Fig. 7. Case 3. Recurrence of giant-cell tumor five years after resection. Suspicious-appearing area also in roof of acetabulum.

#### SUMMARY

These three cases of giant-cell tumor in the upper end of the femur were somewhat unusual. In the first case symptoms had been present for only seven months and the tumor was excised during the active period of the growth, when the vascular mass within the cavity could be scooped out, the lining destroyed by curettage and the side walls crushed in. Roentgen-ray treatment will be carried out when the cast is removed six weeks from the time of operation.

The second case showed the terminal cystic stage of the disease. Bony union has ensued after a stormy convalescence complicated by fracture.

The third case showed the tendency to recurrence. It is probable that enough of the upper end of the bone was not removed to include the limiting membrane that is present in these tumors, and which walls off the tumor from the rest of the medullary cavity.

The two patients who had active trouble were below par, with low hemoglobin, whereas the patient in the terminal stage was in robust health.

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## OF WHAT DIAGNOSTIC VALUE IS A SINGLE GASTRIC ANALYSIS?\*

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**G**ASTRIC analysis implies the chemical, macroscopic and microscopic study of the gastric contents. Its value and bearing on diagnosis is debatable. Recent literature yields constant repetitions of the fact that gastric analyses should be re-checked before they have any worth. Doctor Cheney<sup>1</sup> of Stanford University asserts that a single extraction of stomach contents is insufficient in the establishment of achlorhydria. Similar opinion must govern the conditions of hypo- and hyperchlorhydria as well; yet older textbooks stress the fact that certain conditions of gastric secretory power are constant in definite disease of the stomach.

With such facts coming from medical research centers, it is surprising that men in active practice in gastro-intestinal disease persist in carrying out the procedure in order to complete their records on any case requiring study. It is estimated that less than 10 per cent of all cases so studied in private practice are re-checked. If this is true, are we to assume that 90 per cent of the gastric analyses performed in private practice have no practical value?

The study of gastric contents can be divided into two steps, namely, macroscopic and microscopic study, and chemical examination. The presence of certain macroscopic and microscopic findings is of great aid in diagnosis; their absence, however, has no significance. Chemical examination, at least, occupies the interest of many observers. This is illustrated by a rapid survey of the 1926 Quarterly Cumulative Index. It reveals 79 publications with direct bearing upon gastric secretory power. No reference could be found where macroscopic and microscopic findings had been listed and studied.

Perusal of several publications revealed that the authors had made no re-check even on series of cases offered as experimental data on some phase of gastric analysis. In view of the fact that clinicians are declaring a single gastric analysis to be of no value, one begins to wonder if he

is not inflicting an unpleasant and valueless procedure upon his patient.

The value of gastric analysis in diagnosis is undoubtedly a variable factor, depending upon the group of workers. One group may depend almost entirely upon clinical study; another upon the x-ray work performed; still another may place extra emphasis upon the laboratory work. It is certain that the first two steps are indispensable, and, in most cases, final, in establishing a diagnosis. Realizing this, it was determined to find of what value the chemical study of gastric contents was to our clinical group.

One hundred and fifty cases were selected upon which a single gastric analysis, by the fractional method, had been performed. Each step in every analysis having been performed by the same individual, we can assume that technical variations are at a minimum.

This group of patients was first studied clinically, and found to possess definite indications for gastro-intestinal study. On none of these was the study made as a routine in general examination. The indications for analysis were variable and their enumeration of no special interest here. Suffice it to say that age, combined with a history of chronic dyspepsia, was indication sufficient to account for many of our cases. This in view of the fact that 25-30 per cent (Bell<sup>2</sup>) of all carcinomas occur in the stomach.

The procedure consisted of extraction of the fasting stomach contents by means of the Reh-fuss tube; then the giving of eight ounces of beef tea, and the withdrawal of material from the stomach at the half and the one hour period. Ordinarily no further extractions were made, except in certain cases of achlorhydria, which condition was determined by a simple method that will be described later. The chemical work was performed on the filtered gastric contents, and the quantitative determinations of free hydrochloric acid content recorded in terms of tenth normal sodium hydroxide. Other chemical work was also performed, but its results have no bearing at this time.

\*Read before the annual meeting of the Southern Minnesota Medical Association, Austin, Minn., October 1, 1927.

Before the cases could be listed as having variations in gastric secretory power, it was necessary to establish a normal. Diligent search in the literature showed great variations in opinion as to what the normal gastric secretory curve should be. It is a general opinion, however, that the limits of normal are broad.

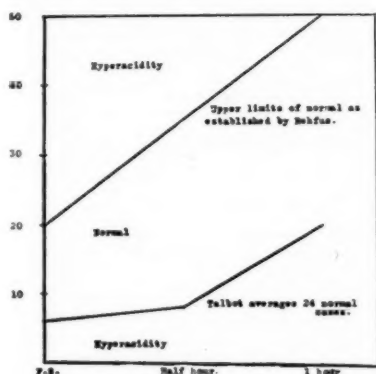


Chart 1.

In Chart 1, the lower curve represents the normal, as established by Talbot,<sup>3</sup> his work being done on twenty-four normal healthy males. The upper curve represents the upper limits of normal, as established by Rehfuess,<sup>4</sup> who has experimental proof to show and prove these high figures. Further, a wide limit of normal is necessary, because of the different type test meal used by different men. We are willing to accept the upper limits of normal as here shown, because of the type of test meal used. Beef tea, according to Ivy,<sup>5</sup> is the only type of food that actually stimulates the gastric mucosa by contact.

Sager and Hartman,<sup>6</sup> in their work on hyperchlorhydria, have used 40 as the upper limits of normal.

One hundred and fifty cases were studied, seventy-seven occurring in males and seventy-three in females (Chart 2). The age incidence of such a group is of interest. We see that the females with indications for gastric study occur with equal frequency in the third and fourth decades; that the incidence of males examined is considerably higher in the fourth decade than in any other.

Grouping these cases according to the state of gastric secretory power which they represent, 14.8 per cent of the total showed hyperacidity, 31.3

per cent normal acid, 32.6 per cent hypoacidity and 21.3 per cent an acidity (Chart 3).

For the purposes of more detailed study and treatment, we have grouped these cases into three large groups, namely, organic disease, reflex gastric conditions, and functional disturbances. A check-up on the final diagnosis of these cases re-

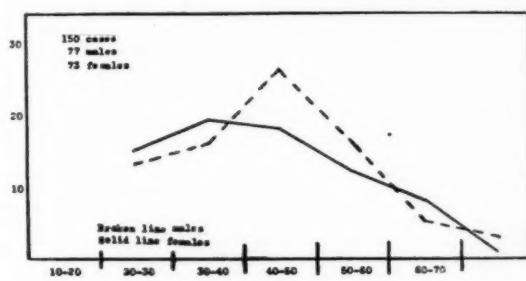


Chart 2.

vealed 20 per cent belonging to the group of organic disease, 46.6 per cent reflex gastric conditions, and 30.6 per cent functional disturbances. There were four cases of pernicious anemia. If

		F.A.	Organic	Reflex	Funct.
Achylia	32	9.4%	15.6%	50%	25%
Hypoacidity	49	2%	12.2%	51%	34.6%
Normal	47	0%	19.1%	51.1%	29.8%
Hyperacidity	22	0%	45.5%	22.5%	32%

Chart 3.

these be considered examples of organic disease it brings the total of that group to 22.8 per cent of all cases.

The cases of organic disease consisted of five

#### 150 Fractional Analyses

<b>Achylia</b>	<b>21.3%</b>	<b>or 32 cases</b>
<b>Hypoacidity</b>	<b>32.6%</b>	<b>or 49 cases</b>
<b>Normal</b>	<b>31.3%</b>	<b>or 47 cases</b>
<b>Hyperacidity</b>	<b>14.8%</b>	<b>or 22 cases</b>

Chart 4.

carcinomas of the stomach, twenty duodenal ulcers, four gastric ulcers, and one gastrojejunal ulcer, or 20 per cent of the total (Chart 4). The cases diagnosed as reflex conditions consisted of

forty-eight cases of subacute and chronic cholecystitis, eight cases of chronic appendicitis, and eighteen cases on which final diagnosis was such as to account for reflex gastric symptoms, for example, early cardiac decompensation, chronic foci of infection, pancreatitis and duodenitis.

Of the functional group there were twelve cases of visceroptosis and thirty-four cases of functional neurosis.

Considering this group of patients in the terms of value received, in diagnosis, from a single gastric analysis, we find in the conditions of hyperacidity 45.5 per cent of the cases coming under the group of organic disease, 32 per cent functional disease, and 23.5 per cent reflex conditions. To be more exact, the conditions to be considered in order of frequency are ulcer, duodenal or gastric, functional neurosis, chronic appendicitis, and chronic cholecystitis. Considering this same group, Sager and Hartman,<sup>6</sup> working on a much larger group of patients, would consider the order of frequency of disease condition as follows: functional neurosis, ulcer of duodenum or stomach, cholecystitis, and lastly appendicitis.

On those patients studied which showed normal acidity, the order of frequency was as follows: reflex gastric conditions 51.1 per cent, functional disturbance 29.8 per cent, and organic disease 19.1 per cent. No similar group comparison could be found in the literature.

Where hypoacidity occurred, reflex gastric symptoms accounted for 51 per cent of the cases, chronic cholecystitis producing over 65 per cent of these. Functional disease occurred in 34.8 per cent of the hypoacidity cases, and organic disease in 12.2 per cent. Conditions in order of frequency were: chronic cholecystitis, functional neurosis, visceroptosis, chronic appendicitis, ulcer of duodenum and stomach, and carcinoma. In their work, Sager and Hartman placed functional neurosis, reflex, and malignant disease, in the order of frequency.

Thirty-two of our cases showed anacidity, fifty per cent proved to be in the reflex group, 25 per cent due to organic disease, including carcinoma and pernicious anemia, and 24.9 per cent functional disturbances. In order of frequency, definite accompanying conditions occurred as follows: chronic cholecystitis, functional neurosis, pernicious anemia, ulcer, and carcinoma. Hart-

man and Sager,<sup>6</sup> in their study of anacidity, found conditions to occur in order of frequency as follows: carcinoma, chronic cholecystitis, functional neurosis, pernicious anemia, ulcer.

Comparing our entire group of patients with those of Hartman and Sager, it will be seen that there is considerable variation in end-results. This can be explained by the fact that ours was a much smaller series and tests were made because of definite gastro-intestinal symptoms requiring differential diagnosis, in contrast to work done more as a routine in general examinations.

To go back to the title of this paper, Of What Diagnostic Value is a Single Gastric Analysis?—special emphasis being placed on the secretory power of the stomach.

We feel that it is of definite diagnostic aid in the condition of hyperacidity only, for even with the high limits of normal, as established in this paper, it is found to be associated with organic (ulcer) disease in 45.5 per cent of the cases. Also that the condition of anacidity can be made to be of more diagnostic value by modifying the procedure slightly. This can be accomplished as follows:

As the fractional extractions are made, a qualitative determination is made for free HCl. If this is not found at the end of the hour, the procedure is continued to 1.5, 2 or even 3 hours. This step is advised in view of the fact that many cases show delayed secretory power and that the percentage of cases showing anacidity will be definitely reduced by such a procedure.

In the cases of hypo- or normal acidity, little value in diagnosis can be obtained by means of chemical study other than the frequent association of hypoacidity with gallbladder disease. However, we are in no position to say that a like number of so-called normal cases would not show a like condition of lowered acidity.

#### CONCLUSIONS

1. Hyperacidity is associated with organic disease in 45.5 per cent of cases.
2. Organic disease occurs most frequently with hyperacidity and functional types of disorders are second in order of frequency.
3. Organic disease is associated with normal acidity in 19.9 per cent of cases.
4. In a group of cases with indications for gastric analysis having normal acidity, the symp-



toms are reflex in 50 per cent of the cases and functional in 29.3 per cent.

5. In hypoacidity cases, 55.8 per cent are reflex gastric conditions, 33.5 per cent functional disturbances, and 12.7 per cent organic disease.

6. In cases of anacidity, reflex gastric conditions, organic disease, and functional disturbance occur in order of frequency.

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## President's Letter

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COL. SWEENEY, who is the Commanding Officer at Fort Snelling, invited the profession of Minneapolis and Saint Paul to attend a review of the Reserve Officers Training Camp on the thirteenth of July and I feel sure that all those who attended were much impressed by the well-drilled appearance of the medical officers. There were men in line who looked to be sixty years of age who had given up two weeks of their time to sleep on hard cots, to drill in the hot sun wearing heavy uniforms and to study drill, and army sanitation. Nothing but a keen sense of duty would induce men of this age to sacrifice their physical comfort in this way. The retiring president of the American Medical Association, Dr. Jabez N. Jackson, was there during the entire period doing his bit and, I am informed by the regular officers, he refused any favors extended to him, insisting on living like the rest of the men. This is a young men's game and two weeks of training such as that given at Fort Snelling should be a wonderful thing from the standpoint of keeping physically fit and being ready for emergencies.

Fort Snelling is fast becoming one of the best if not the best army post in the country, so the regular officers say, and the opportunity to fraternize on such an intimate basis with medical men from the entire northwest must be a very broadening experience.

*C. B. Wright*

# EDITORIAL

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Vol. XI AUGUST, 1928 No. 8

### The Five Year Program of the Committee on the Cost of Medical Care

The attention of the laity as well as the medical profession has been directed recently to the study being undertaken by the Committee on the Cost of Medical Care by articles appearing in current lay and medical magazines. The subject is of great importance to the profession as well as to the public.

At an informal conference held April 1, 1926, in Washington, D. C., attended by some fourteen physicians, sanitarians and economists interested in the question of the high cost of medical care,

a committee of five was appointed to formulate plans for a complete study of the aspects of medical service. As a result, a second conference was held May 7, 1927, in Washington at the time of the A. M. A. meeting and a committee of forty-two members was chosen to make a five year study of this tremendously important subject. The standing committee includes six representatives of the field of public health; eight representatives of various institutions and organizations; five economists, and nine representatives of the general public. Of the forty-two members, twenty-three hold the degree of Doctor of Medicine. A perusal of the personnel of the committee headed by Dr. Ray Lyman Wilbur, president of Stanford University, indicates that the committee is well chosen. The undertaking will require the expenditure of some \$300,000 during the five year period and has been made possible by the support of the Carnegie Corporation, the Millbank Memorial Fund, the Russell Sage Foundation and the Twentieth Century Fund. The A. M. A. is planning to make one or more important studies at its own expense and the Metropolitan Life Insurance Company and the United States Public Health Service will also cooperate.

The first publication of the committee, under date of February 13, 1928, calls attention to the crying need for such an investigation and outlines the contemplated five year study. After perusing the list of subjects to be investigated we can think of no phases of the problem that have been omitted. The committee, with no preconceived idea as to the solution of the problem, proposes to obtain a mass of information as to family incomes, cost of medical care in large and small cities and in rural communities, prevalence of disease, possibilities of preventive medicine, cost of medical education, income in private practice, capital investment in hospitals and clinics, industrial medicine, pay and free clinics, types of medical insurance; and then hopes to make some recommendations.

We admire the temerity of the committee in attacking such a gigantic economic problem and any comment on the investigation here must of necessity be brief.

The high cost of living is not limited by any means to the field of medical care. The information obtained by the committee should show whether the cost of medical care has greatly outstripped other living costs.

The problem of meeting the economic loss incident to sickness and accident is not a new one. Various expedients have been resorted to such as free hospital and medical service, endowment of private hospitals, workmen's compensation laws and other types of insurance, and graded medical fees. The state has taken a hand in the treatment of certain long disabling diseases, notably tuberculosis and mental disease. It has also interested itself in preventive measures such as the prevention of the spread of venereal and contagious disease by free treatment and vaccination. Although the institution of such activities on the part of the state met with opposition from certain members of the profession, such participation on the part of the state has as a matter of fact relieved private medical practice of an enormous burden.

Certain causes of the high cost of medical care are obvious:

In the first place should be mentioned the depreciation of the almighty dollar. Then, too, the high standard of living, buying on the installment plan, the automobile curse (as some have described it) all tend to make the meeting of the unexpected medical expense a hardship.

Modern hospital service is much superior to that furnished a few years ago. Aside from the greater personal comfort supplied the patient, the facilities for laboratory diagnosis and medical and surgical treatment supplied are expensive. Over-hospitalization of a community is also an extravagance.

Increase in the cost of nursing and the shortening of hours, while a justice due the nursing profession, contributes to the increase in cost of medical care.

From the standpoint of compensation to the physician much may be said. Seven years spent in medical training justifies a fair return on the investment of time and money. The cost of office maintenance, office equipment, automobile and that important item of incidentals has rightly raised medical fees. General remarks as to proper fee schedules are impossible inasmuch as there is no general uniformity. Specialization has come to be a necessity in medicine. The ad-

ditional expense of training in a specialty and the rightfully increased return due those specially skilled or experienced have to be considered. Parenthetically, we might remark that, as compared with fees and commissions paid out to other professions and in high finance, many medical fees are ludicrously low.

The public and the medical profession will await with considerable interest the final report of the committee's investigation. Its findings as to the average cost of medical care to families in the so-called middle strata economically speaking; the average gross and net income of general practitioners and specialists; hospital facilities in the small and large communities—should be of value.

And as to committee recommendations. We trust the committee will not be influenced by socialistic or Utopian ideas destined to disturb the personal relations existing between patient and physician. We still maintain that the state should not take over any activities which private enterprise can handle, for the reason that private initiative has proven to be more efficient.

Sickness and accident are existing risks which, like fire, tornado, theft and death, threaten each individual and family unit. Insurance relieves the loss from these other risks; why should it not help to alleviate the high cost of medical care?

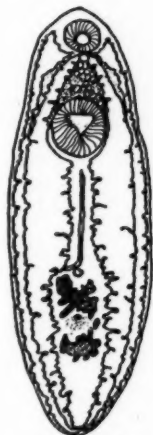
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#### A Fish Parasite Often Mistaken for the Larva of the Broad Tapeworm, *Diphyllobothrium Latum*

The wide publicity which has been given recently to the finding of the larvæ of the broad tapeworm, *Diphyllobothrium latum*, in native fish has stimulated an unusual number of inquiries regarding worms of various types from this source. Many of these inquiries relate to mature tapeworms found in the intestines of the fish and it is obvious to anyone acquainted with the life history of cestodes that these tapeworms have no relation to the human parasites. Not infrequently roundworms are submitted for examination as tapeworms, but even a superficial examination of these will exclude them on the basis of shape and size. They, too, are most commonly found in the intestines or in the body cavity.

There is one parasite, however, which is very commonly found in the flesh of food and game fish and which is the most frequent object of

mistaken identifications. As fish are usually prepared, moderate infestations are overlooked, but, when they are skinned, it is readily seen in the form of little opaque creamy-white cysts measur-



Larval fluke from the muscle of a small-mouthed bass. (X10.)

ing, on the average, about one-sixth of an inch in diameter.

My attention was first directed to the common occurrence of these parasites in Minnesota fish some ten years ago when I was asked to make a study of conditions in a lake in Mahanomen County which was noted for its abundance of black bass. The writer of the request complained that the bass from this lake were all infested by a parasite dangerous to man and suggested that taking fish from it should be prohibited. Interested as I was in the occurrence of the broad tapeworm of man in this section, I naturally supposed that the complaint referred to larvæ of this parasite.

The first fish caught was heavily parasitized and it was clear that the infestation was not due to a tapeworm but to a fluke. When the rounded cysts were torn open in the process of skinning or for examination, they were found to contain an elongate flatworm measuring from one-fifth to one-third of an inch in length and one-twelfth of an inch or less in breadth. At the anterior end was to be seen a mouth-opening, surrounded by a muscular sucker and about one-fifth of the distance caudad was a prominent ventral sucker in the midline. Unlike the larva of the broad tapeworm this fluke larva did not taper rapidly to the posterior end but was, roughly speaking,

of equal breadth throughout. It differed also from a tapeworm in the fact that an alimentary canal and mouth-opening were clearly present.

Technically, this immature fluke from the flesh of fish is known as *Clinostomum marginatum*. It is apparently most commonly found in perch but has been reported from rock bass, black bass, sunfish, brook trout, and bullheads as well as from some other fish not used as food. The worm matures to adult stage in various fish-eating birds. It is incapable of developing in man, though, of course, knowledge of its presence in the fish is disturbing. Heavily infested fish may well be considered unwholesome. The parasite is widely distributed throughout at least the Eastern United States and parts of Canada and must be regarded as of considerable economic importance since it is the cause of enormous numbers of so-called "grubby" fish being discarded.

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### Angina Pectoris

Those interested in this dramatic disease entity (said to be singularly a doctor's reward after a busy life) should carefully read an article by Keefer and Resnik.\* The century-old strife as to its direct causation (from Heberden's classic description, through the efforts at elucidation of Huchard, Mackenzie and Albutt) is frankly and logically discussed. The writers have read much, and analyzed their data in terms of another conclusion that has had not a little attention in more recent years, namely, anoxemia of the heart muscle. The article itself should be read. The authors' plea for caution in making the diagnosis of angina pectoris; their assertion that the tendency to sudden death must ever be emphasized, both in making a diagnosis, and venturing a prognosis; their weighing of the status of the coronary arteries as blood carriers (degree of narrowing or sclerosis); the patency of the coronary ostia (syphilitic obstruction); the competency of the aortic valve cusps determining diastolic blood pressure (both in syphilitic and rheumatic aortic valve insufficiency)—all must meet with the

\*Keefer, C. S., and Resnik, W. H. Archives of Int. Med., Vol. 41, No. 6, p. 769, June 28.



strong approval of those who have seen a good deal of such clinical and postmortem material.

Like other efforts, however, to solve long drawn-out controversies, one wonders whether the authors have given us something which is not likewise subject to challenge, even as they have challenged distinguished students of the past. In this connection one thinks in terms of how logically they may dispose of the question of "spasm in the coronary arteries"—diseased, as they are—when they admit that the influence of the nitrites come through vasodilatation. If these arteries can dilate why should they not be able to contract? If, in like manner, the drop in diastolic pressure incidental to aortic insufficiency determines the failure in blood flow to the heart muscle through the coronaries, how is it that attacks of angina pectoris are terminated by lowering the diastolic pressure through these drugs?

Giffin (of the Mayo Clinic) has reported the syndrome of angina pectoris in pernicious anemia; the patient losing the attacks after blood transfusion and showing at autopsy patulous and normal coronaries. The authors hold such experiences as strong support for the anoxemic theory of anginal causation. They do not, however, mention the possible influence of low blood pressure or lessened blood volume in pernicious anemia. Viewed abstractly, one hesitates, in analyzing the whole situation, to put the whole blame on oxygen lack—vital though it is—since the blood is the conveying medium of nearly everything that comes to the tissue cells or leaves them. Ordinary anginal seizures and coronary occlusions are contrasted in an orderly manner, significant of the great interest of the last three years in the latter entity.

E. L. T.

## MISCELLANEOUS

### GOITER SURVEY OF MARTIN COUNTY

During the school year 1927-1928, a goiter survey was made of school children in Martin County, Minnesota. The Junior High School examinations were made by a local physician with the aid of the county nurse and a student nurse. All other examinations were conducted by the county nurse. The following official report by the Administrative Board of the Martin County Public Health Association was made by Miss Esther

Johnson, the Martin County nurse, at the annual meeting of the society, June 5.

### GOITER SURVEY MARTIN COUNTY, 1927-1928

	Number Examined	Incidence	Girls	Boys	Degree Enlarged*			Under Treatment
					1	2	3	
High Schools Ages 14 to 18	422	169 (40%)	144	25	129	37	3	9
Junior High School at Fairmont. Ages 12 to 15	169	69 (40%)	43	26	62	6	1	0
Grades. 6 to 15	2884	335 (12%)	243	92	285	47	3	7

\*1—Slight enlargement; 2—moderate enlargement; 3—greatly enlarged.

†The number appearing in the column "under treatment" indicates the number of children being treated at the time of the survey.

Editor's Note: While the degree of enlargement of thyroid gland is much a matter of individual interpretation, this survey adds further evidence of the prevalence of goiter in Minnesota and the need for more intensive preventive treatment as a public health measure in the state.

### ADDRESS OF GREETING TO THE AMERICAN PSYCHIATRIC ASSOCIATION, AT MINNEAPOLIS, MINNESOTA, JUNE 5, 1928

C. EUGENE RIGGS, M.D.

*Saint Paul*

Mr. President, Members of the American Psychiatric Association:

Eighty and four years ago, there gathered on October 16, 1844, in the Hotel Jones, in Philadelphia, a city justly famous for the part it has played in the upbuilding of a great nation, a nation standing unafraid among the nations of the world, because it is grounded on justice and equity and its reverence for the sacredness of human rights, thirteen men, immortal in the annals of American psychiatry, organized as an association of Medical Superintendents of the American Institutions for the Insane. Thirteen asylums were represented. The association was reorganized in 1882 as the American Psychological Association and in 1891 its name was again changed to the American Psychiatric Association.

Eighty and four years have passed since that epochal meeting. Think of the paucity of psychiatric knowledge in 1844, and the remarkable achievements of 1928! These thirteen pioneers built but with no material to build with. They made a trail through once untrodden

ways. They sleep in peace but their work made this great meeting of today possible.

During the session of four days, the discussions centered around such subjects as: "The Moral Treatment of Insanity"; "Medical Treatment of Insanity"; "Jurisprudence of Insanity"; "Statistics of Insanity"; and "Constructions of Insane Hospitals."

They accepted the invitation of Dr. Kirkbridge, Superintendent of the Pennsylvania Hospital, to visit his Institution. The report states they were much pleased. They then visited the Eastern State Penitentiary, where they discussed the influence of prison life on the patient, and appointed a committee to report on the influence of different systems of prison discipline in causing insanity. The editor of the *Journal of Insanity* wrote of this meeting: "We believe we but express the opinion of every member of this association that this their first meeting was far more interesting and profitable than they anticipated and the only regret in relation to it was that it could not be of longer duration."

Allow me to recall attention to a tragic fact of history. A quarter of a century ago, there raged a bitter war between the twin cities, as to which was the larger; one accused the other of robbing the cemeteries to increase their directories. Today, all know that Minneapolis has attained her numerical superiority and St. Paul heartily congratulates her in having so splendidly arrived. My Minneapolis confrères, with great generosity of spirit, asked me, a St. Paul man, to extend to you, members of the American Psychiatric Association, a most cordial greeting and welcome to this city beautiful—Minneapolis—a city of great industries, beautiful homes, attractive boulevards, charming lakes, and last, but not least, the State University. With great cordiality are you also welcomed by the psychiatrists of the Twin Cities, the State, and the Minnesota Neurological Association.

Mrs. Riggs and I were in Edinburgh when this unnatural feud was at its greatest height. I was working in the laboratory of the Royal Morning-Side Asylum, whose Superintendent was Sir Thomas Clouston, whom I regard as the greatest alienist of his day. Dr. Batty Luke graciously gave me a dinner. Among those present was Sir William Turner—the last, I believe, of the great Scotch anatomists—who, during the course of the evening, asked me why Minneapolis would not allow the Bible to be read in the public schools. Not wishing to deny him an anticipated pleasure, I asked: "Why?" He immediately replied, "Because it contains the Epistle of St. Paul." The celebrated Scotch Surgeon, John Chiene, of Edinburgh, whenever he would meet me on the street, always shook hands most cordially—then would remark, "Oh, Dr. Riggs, of Minneapolis, I believe."

"Lost battles over—let them be,  
Bury thy dead, O Memory."

Medicine has progressed upward by slow and lagging steps. Rarely does one discovery follow another in quick succession, causing an upward impetus as irresistible as that of a tidal wave. Twenty-five years after Pinel so dramatically struck the shackles off of the insane at the Bicêtre, his progressive ideas had not

advanced one step. Read his pupil Esquirol's burning philippic regarding their condition. It is not my purpose to discuss psychiatry. For me it possesses a lure no other department of medicine does. If what scientists tell us is fact—that the human brain is undergoing a process of transformation—that it has not as yet reached its ultimate evolutionary goal—that there are large areas of brain cells now latent and when these begin to function and the brain has reached its predestined goal, the change in personality will be inconceivably great—such a personality of which sages have dreamed and poets have sung.

Unusual men—these thirteen pioneers—men appearing at the fulness of time—men possessing great courage—selfless men, keen of vision and aflame with a consuming ardor to care for the insane and the defective. Unconsciously to themselves, they laid deep and broad the foundation upon which the great temple of Modern Psychiatry stands.

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## OBITUARY

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### Dr. Hugh W. Reynolds

Dr. Hugh Williamson Reynolds died Saturday, June 30, 1928, at his home in Hibbing, Minnesota. The cause of death was pneumonia complicated by meningitis.

Dr. Reynolds graduated in 1914 at the University of Minnesota. He spent one year as interne in the Minneapolis General Hospital, and following that went to Hibbing, where he had practised since that time, except during the war, when he was in the service for about two years.

He is survived by his widow and two small children, a boy and a girl.

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### Dr. P. M. Hall

Dr. Pearl Mitchell Hall, for 10 years superintendent of the Walker Sanatorium, Walker, Minn., died of heart disease, July 18, at Walker, at the age of 67.

Dr. Hall was born at West Jefferson, Ohio, Oct. 19, 1860. He was educated at the University of Minnesota and at the Hahnemann Medical College, Chicago. He was among the early students of the University of Minnesota shortly after it was organized and received his doctor's degree from the Hahnemann in 1882.

Previous to his appointment as superintendent at the Walker sanatorium, July 21, 1918, Dr. Hall lived in Minneapolis, where he was medical inspector of the health department in 1897-98. From 1901 to 1918 he was commissioner of health.

Dr. Hall was the most efficient superintendent the state ever had, in the opinion of members of the State Board of Control. He was held in high esteem by his co-workers as well as his patients.

Surviving Dr. Hall are his wife, Judge Hall and another son, Francis, of Minneapolis; and a daughter, Mrs. Lloyd Duntley, of Fargo, N. D.

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## COMMITTEE ON PUBLIC HEALTH EDUCATION

### Our Newspaper Service

We quote the following from a letter received some time ago from one of the members of our Association:

"I certainly believe that the Medical Profession should be the source of leadership in every movement intended to better human health and if it cannot maintain this leadership then maintaining contact with organizations willing to spend money to induce people to use the wisdom of the Medical Profession and pay for it, would be the very next best thing. And the closer contact we can keep as a body, both dentists and physicians, with the people who influence public thought, to see to it that such thought is influenced along the right lines, the better off we will be.

"I attended a meeting of seven counties in Wisconsin holding their district meeting and their secretary reported that they had had articles in more than two hundred of the weekly papers of Wisconsin and in more than fifty daily papers and he exhibited clippings from these various papers which represented a tremendous amount of work. The medical men of Wisconsin seemed to be very well pleased with the character of this work. I sincerely believe that Medicine has sat still long enough allowing the other kinds of health organizations to get a strong lead of them and it is decidedly wrong. Medicine has remained in the archaic period while everything else including the Chiropractors are adopting present day methods. The sooner the medical profession makes up its mind to use its brains to help itself as well as humanity the better it will be for all concerned."

After receiving several such letters from the profession and many requests for health news from the newspaper men in Minnesota, The Committee on Public Health Education, on the first of June, instituted a press service similar to the one in Wisconsin. We are very fortunate in being able to secure from the State Medical Society of Wisconsin a duplicate of their service at a very small cost.

Leading physicians of the Medical Society of Wisconsin are invited to prepare 500 word statements on timely topics. The public wants to know the cause of disease; whether or not it is contagious; whether the medical history shows that the disease can be checked, and what medical science has to offer at the onset, before a physician can be reached. Every effort is made to avoid the creation of undue alarm but no effort is spared to give the facts about the disease in their proper setting.

The editor of the Wisconsin State Medical Society's news service is a trained newspaper man with much experience. With the aid of a medical dictionary he translates the physicians' original statements on assigned subjects into simple terms—words and phrases that the average person with an eighth grade education will understand. After the newspaper man has rewritten the story it is submitted to the secretary of the Medical Society, who resubmits it to several physicians interested in that very disease. It then comes back to the press man with their suggestions and after revision it is ready for the press. Thus the stories come to us and the Committee adapts and fits them to conditions in Minnesota and then they are released to the papers throughout the state. In this way we are able to give the public the very best health news.

This service was not instituted to promote the interests of any physician or group of physicians. No name of a physician ever appears in any of the news releases. This information is not furnished to promote individuals, but placed before the readers solely in the public interest.

These weekly stories go to one hundred and eighty-six papers throughout Minnesota. There are about four hundred and fifty newspapers in the state. We want you to check up and see whether the papers in your county are getting this service. The service is free; all that the editor must do is to write to the Secretary's office, 11 West Summit Avenue, Saint Paul, asking to be put on our mailing list.

If your paper is taking this service, compliment the editor and have your friends speak to him also. We are trying to make this a real contact with the public and it is only by the coöperation of every member of the State Association that we can make headway in this problem. The progress must necessarily be slow.

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### PROGRAM OF THE NORTHERN MINNESOTA MEDICAL ASSOCIATION, ANNUAL ASSEMBLY

Fergus Falls, Minnesota, August 20 and 21

The annual assembly of the Northern Minnesota Medical Association will be held at Fergus Falls, Minn., on Monday and Tuesday, August 20 and 21. A portion of the program will be held at the State Hospital, where the unusual material and facilities of that large institution will be available. The registration and meeting of Monday forenoon will be held in the rooms of the Chippewa Club.

Monday, August 20

8:30 A. M.—Registration

9:30 A. M.—Classification of Intestinal Obstruction

Dr. O. N. Nelson, Battle Lake

Heart Symposium—

a—Classification of Heart Disease

Dr. E. T. Bell, University of Minnesota

b—The Diagnosis and Treatment

1—Infectious Type

Dr. E. L. Tuohy, Duluth

2—Non-infectious Type

Dr. H. L. Ulrich, Minneapolis

c—The Roentgenologic Diagnosis

Dr. Leo. G. Rigler, Minneapolis

Noon Intermission

1:30 P. M.—Psychiatry Clinic, at the State Hospital

Dr. W. L. Patterson and Staff

Early Human Embryology, with Lantern Slides

Dr. F. C. Schuldt, St. Paul

Paper on Fractures, with Demonstration

Dr. A. E. Wilcox, Minneapolis

Surgical Clinic

Dr. W. J. Mayo, Rochester

7:00 P. M.—Banquet and Program, Dr. C. B. Wright,

Toastmaster

a—Remarks—Dr. W. J. Mayo, Rochester

b—President's Address—Dr. F. J. Hirschboeck, Duluth

c—Talk—Dr. J. T. Christison, St. Paul

d—Dancing

Tuesday, August 21

8:30 A. M.—Injection Treatment of Varicose Veins

Dr. A. F. Bratrud, Minneapolis

Neurologic Diagnosis

Dr. E. M. Hammes, St. Paul

The Value of Conservative Treatment in Lesions of the Stomach and Duodenum

Dr. D. C. Balfour, Rochester

Pediatric Paper

Dr. F. C. Rodda, Minneapolis

Present Viewpoints on Essential Hypertension

Dr. Geo. E. Brown, Rochester

Diagnostic Dialogue—Case History Presentation

1:00 P. M.—Complimentary Luncheon, Park Region Medical Society.

The afternoon will be given over to golf, other forms of recreation and a visit through the State Hospital. Most generous entertainment has been provided for the ladies. This will consist of drives, a trip to the various lakes, and afternoon teas. Remember that the annual assembly of "Northern Minnesota" is the *big meeting* for the ladies.

M. O. OPPEGAARD, M.D.,  
Secretary.

### WABASHA COUNTY MEDICAL SOCIETY

The annual meeting of the Wabasha County Medical Society was held at Plainview, Thursday, July 5, 1928.

Twenty-two were present at the dinner: Twelve members, one affiliated dentist, two medical men from outside the county, and seven accompanying ladies.

#### PROGRAM

President's Address—Medical Progress in Wabasha County Since the Founding of this Society: Dr. W. J. Cochrane, Lake City.

Specialism: Dr. D. P. Dempsey, Kellogg.

Functional Dyspepsia: Dr. D. M. Masson, Rochester, Mayo Clinic Staff.

A Review of the 1928 Interstate Post-Graduate Assembly Tour: Dr. Arnold S. Anderson, St. Paul, Office of Board of Control.

#### OFFICERS ELECTED

President—Dr. D. P. Dempsey, Kellogg.

Vice President—Dr. D. S. Fleischhauer, Wabasha.

Secretary-Treasurer—Dr. W. F. Wilson, Lake City, (served continuously since 1896).

Delegate—Dr. J. A. Slocumb, Plainview.

Alternate—Dr. H. E. Bowers, Lake City.

Censor—Dr. W. J. Cochrane, Lake City (three years).

Other Censors—Dr. J. F. Bond, Wabasha; Dr. J. A. Slocumb, Plainview.

At the business session, reports of committees were received. The Society pledged cooperation with the Committee on Public Health Education of the State Association and the secretary stated that some newspapers in the county had accepted the publicity service of that Committee, and at least one paper in the county had already published two of the articles.

It was voted to combine with either Winona or Goodhue counties in regard to taking up the proposed "University Short Post-Graduate Course for Physicians," in case either of these adjoining counties accepted the course at a time when it would be advantageous for this county to combine.

Doctor Wilson reported that he had acted as correspondent for this county in the matter of compiling a medical history of Minnesota and that some time in February he had returned the data to Dr. H. M. Work-



man, Secretary of the Historical Committee of the State Association. The historical data included brief biographical sketches of 103 physicians who at one time or another had practiced in the county since 1855, giving especial attention to the pioneer physicians; also an outline of the history of the Wabasha County Medical Society since its founding in 1869, a sketch of the various hospitals and sanitarium that had existed in the county, and other material.

The social features of the meeting consisted of a dinner served at the home of Dr. R. R. Loney, and special entertainment for the ladies in the afternoon. The families of the other physicians and dentists of Plainview assisted Dr. and Mrs. Loney in the very hospitable entertainment of the Society and guests.

W. F. WILSON, M.D., Secretary.

#### WEST CENTRAL MINNESOTA MEDICAL SOCIETY

Members of the West Central Minnesota Medical Society had their annual outing at Browns Valley, July 8, 1928.

The members of the society and ladies were the guests of Drs. Bates, Weir and Walfred at a chicken dinner served in the club house on the golf course. The day was spent in golfing, boating and bathing. The society had a very enjoyable time, and many thanks are due to the hosts who entertained us so royally.

HERMAN LINDE, M.D., Secretary.

#### RICE COUNTY MEDICAL SOCIETY

Rice County Medical Society held a special meeting Thursday, July 5, in the Faribault Clinic Rooms.

Dr. D. E. McBroom, delegate to the Minnesota State Medical Association gave his report of the meeting.

Dr. T. R. Ponton, Medical Adviser of the Gorgas Memorial Institute, talked on "The Periodic Examination."

Mr. Robert O. Jones, Associate Director of the Memorial, addressed the society on "Medical Health Economics."

C. J. PLONSKE, M.D., Secretary.

### OF GENERAL INTEREST

Dr. Edwin C. Muir, son of the late Dr. E. S. Muir of Winona, is now practicing at Minneiska, Minnesota. (U. of Minn. Med Sch., 1925.)

Dr. Wm. Stryker, formerly teaching fellow in the department of pathology, University of Minnesota, has recently located at Plainview, Minnesota.

Dr. A. H. Brown of Pipestone, Minnesota, is spending the summer months in Europe in study and travel. Dr. Brown expects to return to his practice sometime in October.

Dr. H. A. Miller and Dr. H. G. Blanchard, formerly of Waseca, Minnesota, are now associated in practice with Dr. V. H. Gardner at Fairmont, Minnesota, in the Fairmont Clinic and Hospital.

Dr. J. D. Geissinger, who has been practicing medicine in Saint Paul for a number of years, has moved to

Pueblo, Colorado, where he will have charge of the pediatric department in the Pueblo Clinic.

Dr. Donald C. Balfour of the Mayo Clinic, Rochester, was recently elected chairman of the Section on General and Abdominal Surgery of the American Medical Association at the recent Minneapolis meeting.

Dr. E. Covell Bayley has located at Lake City, Minnesota, taking over the practice of his father, the late Dr. Emery H. Bayley. Dr. Covell Bayley has just returned from a trip, as ship's surgeon, to South America.

At the Ancker Hospital, Saint Paul, Dr. Gordon E. Strate has been appointed assistant superintendent; Dr. Seymore R. Lee, resident in obstetrics and gynecology; Dr. Carl Langenbahn, resident in surgery; Dr. Cecil Warren, resident in surgery; and Dr. Raymond Richards, resident in medicine.

Dr. Arnold Anderson, formerly of the Buena Vista Sanatorium at Wabasha, Minnesota, is now in charge of the Tuberculosis Division of the Minnesota Public Health Association with headquarters in Saint Paul. Dr. Russell H. Frost succeeds Dr. Arnold S. Anderson, as medical superintendent of Buena Vista Sanatorium.

Dr. H. B. Bailey of Ceylon, Minnesota, with his wife and two children, are motoring through the East visiting Niagara, Montreal, Quebec, New York, Washington, D. C., St. Louis and Chicago. Dr. D. T. Armand, who recently completed his internship at St. Mary's Hospital, Minneapolis, is taking care of Dr. Bailey's practice during his absence.

Dr. Joel C. Hultkrans of the Saint Paul Nervous Clinic and Dr. James J. Swendson of the Earl Clinic left Saint Paul on June 28, by automobile, for Boston, Massachusetts, where they will do a month's post-graduate work at Harvard Medical School. Dr. Hultkrans will take work in the neuro-psychiatric department and Dr. Swendson will spend his time in the department of gynecology with Dr. Graves.

The Minnesota Society of Internal Medicine is offering a prize of \$250.00 for the best work presented to the Society during 1928. The prize is awarded to the practicing physician, exclusive of members of the Society in the State of Minnesota, who has been deemed most worthy to receive a prize in research in clinical medicine. Theses will be received by the secretary, Dr. Edwin L. Gardner, 610 Yeates Building, Minneapolis, Minnesota, up to October 1, 1928.

The new Children's Hospital, 311 Pleasant Avenue, Saint Paul, was formally opened with befitting ceremonies on the afternoon of July 17, 1928. Addresses were given by Dr. Joseph Brennenman, chief of staff of the Children's Memorial Hospital of Chicago; by Dr. Henry F. Helmholtz, professor of pediatrics, Mayo Foundation, Rochester, Minnesota, and by Dr. Frederic W. Schlutz, chief of the Department of Pediatrics, University of Minnesota, before a large gathering of lay and medical friends of the new hospital and its chief of staff, Dr. Walter R. Ramsey. The completion of the Children's Hospital is due in large measure to the untiring efforts of Dr. Ramsey, ably assisted by Mr. William Darling.



## NEW AND NON-OFFICIAL REMEDIES

The following articles have been accepted by the Committee on Pharmacy and Chemistry:

### ABBOTT LABORATORIES

Tablets Ephedrine Hydrochloride-Abbott,  $\frac{1}{4}$  grain

### DESHELL LABORATORIES, INC.

Petrolagar (Unsweetened)

### MEAD, JOHNSON & CO.

Mead's Standardized Cod Liver Oil, Flavored

### PARKE, DAVIS & CO.

Glaseptic Ampoules Ephedrine Sulphate-P. D. & Co., 0.05 Gm. ( $\frac{1}{4}$  grain), 1 c.c.

Capsules Ephedrine Sulphate-P. D. & Co., 0.05 Gm. ( $\frac{1}{4}$  grain) Paroidin

### PROPHYLACTO MFG. CO.

Capsules Ephedrine Hydrochloride-Pemco, 0.3 Gm.

Capsules Ephedrine Hydrochloride-Pemco,  $\frac{1}{4}$  grain

### E. R. SQUIBB & SONS

Squibb's Vitavose

### SWAN-MYERS CO.

Gentian Violet Capsules-Swan-Myers, 1 grain

## TRUTH ABOUT MEDICINES

*Pollen Extracts-Swan-Myers (New and Non-official Remedies, 1928, p. 38).*—Also marketed in packages of one vial containing 2,000 units. Swan-Myers Co., Indianapolis.

*Concentrated Pollen Extracts-Swan-Myers.*—In addition to the products listed in New and Non-official Remedies, 1928, p. 30, the following product has been accepted: Biennial Sage Concentrated Pollen Extract-Swan-Myers. Swan-Myers Co., Indianapolis.

*Glaseptic Ampoules Solution Glucose, 50 per cent, 20 c.c.*—Each ampoule contains dextrose U. S. P., 10 Gm., in distilled water, to make 20 c.c.; buffered with sodium citrate, 0.25 per cent. Parke, Davis & Co., Detroit.

*Glaseptic Ampoules Solution Glucose, 50 per cent, 50 c.c.*—Each ampoule contains dextrose, U. S. P., 25 Gm., in distilled water, to make 50 c.c.; buffered with sodium citrate, 0.25 per cent. Parke, Davis & Co., Detroit. (Jour. A. M. A., June 16, 1928, p. 1945.)

*Bismuth Sodium Tartrate-Searle.*—A basic sodium bismuth tartrate containing from 72.7 to 73.9 per cent of bismuth. Its use is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (see Bismuth Compounds, New and Non-official Remedies, 1928, p. 104). The product is administered by intramuscular injection. It is supplied in the form of 2 c.c. ampoules containing bismuth sodium tartrate-Searle, 0.03 Gm., benzyl alcohol, 0.040 Gm., sucrose, 0.5 Gm. in water sufficient to make 2 c.c. G. D. Searle & Co., Chicago.

*Tablets Ephedrine Hydrochloride-Abbott,  $\frac{1}{4}$  grain.*—Each tablet contains ephedrine-Abbott (New and Non-official Remedies, 1928, p. 176)  $\frac{1}{4}$  grain. Abbott Laboratories, North Chicago.

## PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of April 11, 1928.

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, April 11, 1928. Dinner was served at 7 p. m. and the meeting was called to order by the President, Dr. John E. Hynes, at 8 p. m. There were 44 members present.

The scientific program of the evening consisted of two papers, and case reports as follows:

1. DR. M. S. HENDERSON (Rochester) read a paper on "Bone Cysts of the Upper End of the Femur," illustrated by lantern slides (See page 542).

### DISCUSSION

DR. A. C. STRACHAUER (Minneapolis): Dr. Henderson has given us a very valuable presentation of the subject of giant cell tumor. It is most unfortunate that this tumor, which is usually benign, has been known as a giant cell sarcoma. It is not a member of the sarcoma family, and the confusion arising from erroneously calling it "sarcoma" has led operators to perform numerous unnecessary major amputations. Bloodgood has been indefatigable in his efforts to correct this situation and has accomplished much good. Czerny, in the 80's, advocated conservative treatment for these tumors.

We have had a considerable number of giant cell tumors at the Cancer Institute and at the University Hospital. In the first year of my practice I conservatively treated a giant cell tumor of the lower end of the fibula. The patient is living and well and there has been no recurrence to date.

The evidence obtainable by the roentgen ray is as valuable, if not more valuable, than the microscopic examination. The chambered appearance, reminding one of the "Chambered Nautilus," is extremely characteristic and practically pathognomonic. Dr. Ewing states that the microscopic examination has often led him astray and he puts more dependence on the macroscopic and x-ray examinations for making a diagnosis. The tumors should be removed by curetting or local resection. Occasionally we have had to amputate on account of the extreme degree of local destruction that had taken place, as in the head of the tibia. Giant cell tumors have been reported by competent observers as giving rise to metastases. These reports are rare and the correctness of the diagnosis open to question.

In conclusion: Giant cell tumors are not members of the sarcoma group, do not metastasize, should be treated by curettage and local resection, and do not carry the indication for amputation except in cases of extreme local destruction in the lower extremity. They occasionally recur locally and should then be treated conservatively.

DR. A. SCHWYZER (St. Paul): A number of years ago Dr. Codman sent out an inquiry to the Fellows of the College of Surgeons about living cases of sarcoma of bone. I reported among others a case of giant cell

tumor I had operated in 1897. It was a tumor of the external condyle of the femur and had gone a little beyond the bone. It had involved the adjoining capsule and fibrous parts. We considered the tumor to be a frank sarcoma at that time and amputation was made. That woman is perfectly well today and Dr. Codman wrote me it was the oldest case they had with a complete record. Fortunately I still had the original microscopic sections, the specimen and history, and I still see the patient from time to time. It has been very difficult for me to make a diagnosis from the microscope. I would like to know a little more about the differentiation by the microscope. I had, a few years ago, two cases of tumor of the condyle of the femur. Both had been operated on by local excision by other surgeons and came with recurrence into my hands. I thought they were giant cell tumors. One I have operated upon several times since because of a repeatedly recurring growth, and there is nothing left of the condyle but a very thin bony shell. The young man still has a moveable joint today. He still has his leg but cannot use it very much and gets around with a crutch. He got large doses of x-ray. The other case had also been operated upon by local excision. When he came to us the mass had reappeared locally and I scooped the whole thing out. The man later died, apparently from lung metastases.

I should be glad if Dr. Henderson would tell us more about the microscopic differentiation, as I think we accepted the inflammatory theory of these giant cell tumors too much in bulk.

DR. H. B. ZIMMERMANN (St. Paul): I would like to ask Dr. Henderson if he considers the giant cell epulis and giant cell tumor the same thing.

DR. A. R. COLVIN (St. Paul): Several years ago I had an opportunity to study two cases that made a very lasting impression upon me. One of them was a case of enlargement of the upper end of the tibia in the service of, and that had been amputated by, the late Dr. Gillette in the earliest days of x-ray in St. Paul. The radiograph looked exactly like a bone cyst, and so it was thought better to explore it; amputation was done, as it was thought to be a sarcoma. I got the specimen and in all of my reading since that time I haven't lost track of that picture. The patient was a man about 54 years of age. The cavity was about the size of a large-sized hen's egg. The tumor-like material was made up of a raisin-colored mass of veal-loaf consistency that was made up largely of the kind of giant cells Dr. Henderson shows here. The limiting membrane of this tumor mass was just as definitely constructed as the inner membrane of an eggshell. It peeled right out. Of course, that could not be malignant. That was about twenty years ago, but at that time I made sections of the tumor, the membrane, and the contiguous bone, also the cartilage next to the bone. Nowhere had it invaded the membrane, the bone, or the cartilage. Clinically that was benign.

About the same time a young girl eighteen years of age came to me with a tumor of the femur, which was so rapidly growing that I wondered if it was osteomyelitis. At exploratory operation it was found to be

an infiltrating tumor, and I took some tissue for examination. I have microscopic slides of both of those tumors today, and I cannot see any difference between the histologic pictures in the encapsulated tumor and the infiltrating one.

Dr. Henderson's pictures of the upper end of the femur are very important. I wish Dr. Henderson would tell us a little more about the case that was a degenerating tumor and he thought was a cyst. Somebody has said it is so much easier to say "what a cyst is not than what it is." A bone cyst has a very thin almost translucent membrane with a clear yellowish fluid.

Regarding the diagnosis and the decision of what to do. There was not any question at all about this girl I spoke of. Histologically, I am quite sure if one explored a case not infiltrating so rapidly, a mistake might be made. Ever since those two cases I have laid down the rule for myself that I must have a very distinct limiting membrane for the tumor before pronouncing it benign. The microscope tells us a good deal, but in spite of all classifications, the giant cell tumor of bone is occasionally possessed of potentially malignant characteristics. The common epulis Dr. Zimmermann refers to will recur if it is not removed entirely. It seems to me the x-ray, combined with what you find when you explore, is just as valuable as the histologic findings.

DR. WALLACE COLE (St. Paul): There is one point which Dr. Henderson did not make very clear in his paper and which I think should be definitely accentuated, and that is, these giant cell tumors of bone certainly do perforate the cortex and invade the soft tissues but never infiltrate them; that is, the fibrous capsule of the tumor always remains intact. I have seen several of these cases where a lobulated mass of tumor was sticking out through the bone into the soft parts but where, on account of the intact limiting membrane, complete removal of the tumor was possible.

2. DR. E. S. JUDD (Rochester) read a paper on "Hirschsprung's Disease," illustrated by lantern slides. (Minn. Med., July, 1928.)

#### DISCUSSION

DR. C. B. WRIGHT (Minneapolis): I remember seeing one of these huge colons removed while I was a student. The little patient died the same day. It gave me early a prejudice against colectomy in this condition.

In 1924, I routinely examined 250 children at the Lymanhurst School by barium enema, and found two cases of megacolon, one a boy aged 8 and the other a girl aged 13. All of these children had been carefully studied by competent pediatricians without the condition being suspected. Sever found one of these cases in 83 routine studies, suggesting that about 1 per cent of children have this condition. None of these cases were extreme. The history of constipation from birth is characteristic.

I remember seeing two other extreme cases with very large abdomen. I have not been able to trace any of these cases. The reason we see this condition so seldom in adults is probably because they so seldom live to

adult life or possibly in some cases normal function is later established. Megacolon acquired in adult life suggests some organic obstructive condition. In true Hirschsprung's disease, no organic obstruction is found. Aside from daily large enemas, there is nothing to do as far as I know, medically. The parents of the four cases I recognized had all found this out for themselves. If the sympathetic system is at fault, as indicated by the brilliant results in these two cases, we have reached a new epoch in our knowledge of functional conditions of the colon and possibly other segments of the gastro-intestinal tract.

DR. E. L. GARDNER (Minneapolis): I am very much interested in this problem, especially the question of sympathetic control. I would like to know what has been the effect of these operations on the size of the colon after a barium clyster as compared with those taken before the operation. I have seen quite a number of megacolons in adults but do not have the chance to see many in children. Symptoms are few and the health remarkably good in many cases. One middle-aged woman just recently came in complaining of heaviness in the pelvis. She had always had normal bowel movements except when on a vacation, she said. She had been on an automobile trip and had not had a bowel movement for one month. With the help she received at the office she filled a pail full and walked out very happy. Sometimes the signs of atonic colon develop in people as they grow older. I have felt that there are many cases not necessarily of the congenital type, but who first have the trouble in expelling the stools, either due to spasm from fissures about the anus or from using cathartics for a long while, who upon starting to take enemas first get a dilatation of the rectum and then a dilatation of the colon farther up. There is a definite sequence of events. This whole question of the size of the colon is an interesting one. Where does the spastic colon leave off and where does the normal and the megacolon begin? If patients take large enemas over long periods of time it seems very possible that the large enemas may dilate the colon.

I think hygienic treatment is extremely important. I have kept the colons quite empty and have the patients use rather concentrated food with the idea of recovery of tonicity of the colon. A colon will adjust itself to stay in any position where it is accustomed to stay, possibly explained by Sherrington's law of postural tonus. If the colon is habitually dilated, it will often stay dilated. An enema of sweet oil every day or every other day is often helpful. I have felt that this type of colon in adults was materially aided by non-toxic doses of thyroid extract even where the basal metabolism is within normal limits.

DR. A. SCHWYZER (St. Paul): We surely have to thank Dr. Judd for having brought before us this interesting subject. As to the etiology of megacolon, we always divide between the one due to obstruction and the one which is congenital. I never could convince myself that this congenital type was analogous with other similar congenital hypertrophies. Such spontaneous hypertrophy and enlargement cannot be accepted readily and surely not before every possible difficulty

of emptying the gut is absolutely excluded. Just those last two cases that Dr. Judd showed us might give us a clue. To explain the result there must have existed beforehand a difficulty in the peristaltic action, which really means the same thing for the parts above as some kink or obstruction of the colon or rectum. Then we say that Hirschsprung's disease is seen in infants without any definite cause; that it is therefore congenital. The cases where we have an abnormal ending of the rectum into the vagina, or, as I saw in one case, in the bladder wall, have an excuse for their large colon; they have difficulty in emptying. One case in a small child with the most enormous colon I have ever seen, might be interesting in this connection. The child when seen had peritonitis from distention ulcers. There had been difficulty of emptying the bowel for a long while. Upon examination and some dilating of the anus a hard calcified mass about the size of a walnut flew out followed by a great quantity of fluid feces. Nothing else was done. The child died in a day or so. In the last two cases of Dr. Judd's, where sympathectomy had such good results, the dilatation and hypertrophy seem to have been due to a form or difficulty of passage, due to abnormal innervation. Thus the dilatation and hypertrophy appear again to be secondary and are made comprehensible.

DR. A. E. BENJAMIN (Minneapolis): I have seen a few of these cases. One I remember was an acute obstruction of the bowel in a woman 18 years of age. I went into the country to operate on her. The obstruction was in the descending colon. She gave a history of chronic constipation and partial obstruction. I found a hard mass just like baled hay in the bowel and a small opening in the center of it, through which the fecal current had passed. I incised the bowel and took the mass out. That was about five years ago and she has been well since.

It is difficult to know just what one is to do in these cases. I have tried taking out a part of the colon and making a side anastomosis and have found that quite satisfactory. Where cecum sigmoidostomy is done, it leaves the large bowel in the abdomen. X-ray in these cases shows that some of the barium would travel into the redundant loop, but the majority of it goes through the artificial opening.

DR. H. P. RITCHIE (St. Paul): Did I understand Dr. Judd to say that, in one case, one side only of the chain was taken out, and in the other both sides were taken? I suppose it is too early in our experience in this field to ask if there is a reason for excising one or both chains.

DR. JUDD (Rochester), in closing: Regarding Dr. Ritchie's question, Dr. Adson took out the 2, 3 and 4 sympathetic ganglia on the one side only in his first case because the condition involved just the sigmoid. A bilateral operation was performed in the second case as the condition was much more extensive and involved the entire colon. I think Dr. Royle and Dr. Wade carried out only a unilateral sympathectomy in their cases. I am sorry that I do not have postoperative x-rays of the colons of these children to present here tonight. Both of them are coming in for an examination this

week. We are anxious to see what changes have taken place in the size of the colon.

I presented this subject with mention of these two cases simply as a suggestion; I do not wish to be understood as advocating this form of treatment in all cases.

Dr. Gardner's and Dr. Wright's discussions brought out the essential points regarding Hirschsprung's disease (megacolon). All those doing abdominal surgery are well aware of the fact that colons vary a great deal in size. In some individuals they may seem to be definitely dilated and yet apparently function normally. I think what Dr. Gardner said about conservative treatment should be emphasized. Surgery should be employed only when obstruction is present and when conservative treatment fails.

3. DR. A. SCHWYZER (St. Paul) reported two cases:

Case 1. A woman 25 years old had several operations for ischio-rectal abscess with fistula following and incontinence since 1924. It seems tuberculosis was suspected but not demonstrated. For one year the patient, a violin teacher, has not been able to work. Much indigestion, nausea and diarrhea with loss of weight had been present. The diarrhea was almost constant during the past six weeks; four or five bowel movements daily. The incontinence persists. Weight 85 pounds. Dr. Watt, who studied the case very carefully, found a mass in the right iliac fossa which he considered as probably a tuberculosis of the cecum. And that is what the case proved to be.

On operation, which was done with local anesthesia with a small amount of gas and ether during the second half, the first gut seen was a fleshy, thick ileum loop which was rather rigid. It led to the cecum, which formed a thick mass. If you look at the roentgen picture, you will see the colon enema end somewhat irregularly, and laterally a fine thready shadow leads toward the pelvis. This I recognized as ileum, which was correct; but as I had not yet at that time examined the patient, the site and size of the tumor mass was not entirely clear to me and this thin thready shadow reminded me strongly of a case of fibroplastic appendicitis, where the ileum was stretched over and obstructed by a fibrous mass of the size of an orange, in the center of which we found the remnant of a gangrenous appendix. In that case, as in the one under discussion, an ileocolic resection had to be done. We always make an end-to-end anastomosis in resections of this type; the ileum is cut obliquely from the mesenteric attachment backward. This increases the nutrition of the cut edge and enlarges the lumen. Then the stitches are simply taken a little wider on the colon side. Three continuous linen sutures made a good inversion of the ends for about one inch and this insures against leakage. Omentum was wrapped around the suture and the abdomen closed tight. The wound was not more than four inches long. This was keeping the guts well in the abdomen and seemed very desirable in the worn-out patient.

The specimen shows the lowest six inches of the ileum very much thickened and rigid. On opening the gut this whole area was seen to be ulcerated. The cecum

was similarly changed and the appendix, whose base was ulcerated when seen from the inside, was thick and embedded in the thickest portion of the mass. Microscopic examination showed giant cells. The mucosa of the ileum was almost completely ulcerated away.

Case 2. A man, 76 years old, came to the office on account of spells of lower abdominal pain which he had had for thirty years every two or three years. Between spells he felt perfectly well. An x-ray examination showed a number of small diverticula of the colon. One, the size of a small marble, was seen on the cecum, a rather rare location. But I show you the case on account of numerous and very beautifully seen diverticula of small and large size in the uppermost jejunum loop. Here you see, besides small ones of the size of French peas, some as large as large walnuts. As the patient, upon questioning, declared he had distress also in the mid-abdomen and as he declared that he had to have something done for his pains, we operated in local anesthesia. The only tenderness on pressure was in the appendix area; but we had to see what these jejunal diverticula meant. Through a moderate sized right rectus incision the uppermost jejunum loop was taken hold of. It looked normal to ordinary superficial inspection. The gut was free, flabby, regular in outline, and the mesenteric attachment was normal. Here you saw the little fatty specks near the gut (x-ray shown); and blood vessels were regular. Nothing abnormal was noticed. But we knew the diverticula were there. So I grasped the loop above and below and forced what air there was in the neighborhood into this loop. Now suddenly air popped into one of the large diverticula between the two peritoneal blades of the mesentery, then another and another and another popped full, corresponding exactly to the x-ray picture as you see it here. When our hold was released and the diverticula were again empty, nothing was seen. The walls of these diverticula were exceedingly thin but there was no trace of any inflammation anywhere.

On the inner aspect of the cecum, as you see here in the x-ray picture, there was the diverticulum we expected to find. An old thin whitish scar ran over it, but again it was very thin-walled and free from any recent inflammatory signs. The appendix, however, was reddish, hard and kinked and rolled up on its mesentery. It was removed. The patient, operated upon on March 26, is feeling very well and has no pain any more.

#### DISCUSSION

DR. A. T. MANN (Minneapolis): I would like to ask Dr. Schwyzer if he did anything to the large diverticulum?

DR. SCHWYZER: I did nothing with the diverticula. They were considered accidental findings. There were no signs of inflammation. The man was 76 years old; he has had no pain since the appendectomy, is up and about and very happy.

DR. E. S. JUDD (Rochester): I have seen quite a number of cases of tuberculosis of the cecum; I have also seen a number of cases of tuberculosis of the ileum. In my experience, however, the case which Dr.



Schwyzler reports is unusual because it seems to show a continuous involvement of the cecum and lower ileum. In most of the cases that I have observed the tuberculous process has been confined to the cecum. If the small bowel is affected, there are usually several separate areas of involvement with marked dilatation of the intestine between them. His case is very interesting and unusual.

His second case, that of diverticula of the jejunum, is also most interesting. It shows more extensive involvement by this condition than any case I have ever seen. In a few instances I have seen a diverticulum in the jejunum near the ligament of Treitz and occasionally diverticula of the jejunum below this.

DR. E. M. HAMMES (St. Paul) reported a case of tuberculous meningitis of over two months' duration with no evidence of meningitis during the course of the illness and in which the spinal fluid was normal throughout except for a decrease in the sugar.

#### DISCUSSION

DR. A. T. MANN: I would like to ask two questions: First, were the knee jerks equal on both sides, and, second, were there any miliary tubercles in the eye fundus?

DR. HAMMES: All reflexes were normal throughout at all times, except that both abdominal reflexes were absent.

As far as I was able to ascertain, examination of both fundi revealed no evidence of any miliary tubercles.

The meeting adjourned.

CARL B. DRAKE, M.D.,  
Secretary.

#### IRON IN THE TREATMENT OF ANEMIA

In most cases of nutritional anemia and secondary anemia, and more or less in primary anemia, the administration of iron is of benefit. The administration of iron intravenously or subcutaneously is rarely necessary or desirable. Recent experiments with rats confirm previous work, that small doses of iron are sufficient to cause improvement. In a recent investigation it was found that the best hemoglobin improvement was caused by administering ferric acetate, ferric albuminate, ferric chloride and ferric citrate. (Jour. A. M. A., June 2, 1928, p. 1792.)

#### PATENT MEDICINES IN MEXICO

The health department of Mexico has prohibited the sale of such "patent medicines" as "Wine of Cardui," "Peruna," "Tanlac," "Pinkham's Blood Purifier," "McCoy's Cod Liver Oil Tablets" and "Miles' Heart Tonic." The reason for this prohibition is thought to be the fact that the manufacturers are alleged to have failed to comply with the regulations recently put into effect by Mexico, requiring all "patent medicines" to publish a statement of their formulas on trade packages. (Jour. A. M. A., May 5, 1928, p. 1480.)

## PROGRESS

Abstracts to be submitted to Section Supervisors.

Members are urged to abstract valuable articles which they run across in their reading and send the abstracts to the physicians in charge of the respective sections. In order to avoid duplication it would be well to communicate with one of the section supervisors before the article is abstracted.

## SURGERY

### SUPERVISORS:

DONALD K. BACON,  
LOWRY BLDG., ST. PAUL

VERNE C. HUNT,  
MAYO CLINIC, ROCHESTER

CANCER OF THE MALE URETHRA: A REPORT OF TWO CASES WITH A SHORT SURVEY OF THE SUBJECT: John J. Robb (Brit. Jour. of Surg., April, 1928. Vol. XV, No. 60, pp. 605-611). Cancer of the male urethra is a very rare disease. No specimen of it exists in the museums of the Royal Colleges of Surgeons in London or Edinburgh. The disease usually occurs in the bulbous portion of the urethra, where it may arise in Cowper's Glands. In no case has the author been able to find a record or specimen of cancer of the urethra which originated in a stricture.

The first case is one of the more ordinary variety arising without apparent cause in the bulb of the urethra and running a rapidly fatal course. The examination revealed a densely hard mass in the perineum in the region of the bulb of the urethra, which terminated at the root of the penis by an abrupt craggy edge. This growth on excision proved to be a transitional cell carcinoma with evidence of rapid growth, infiltrating the deep tissues.

The second case was in a patient 59 years of age, who gave a history of having had gonorrhea at 21. At 53 years he experienced difficulty in passing urine. A stricture was diagnosed, and, during the next five years, bougies were passed on 111 occasions. Finally it became impossible to pass bougies, and an operation for excision of the stricture was performed. The microscopic examination showed scar tissue extensively infiltrated by transitional celled epithelioma involving the corpora cavernosa and the corpus spongiosum. The stricture was located at the peno-scrotal junction.

In the latter case 477 passages of instruments were made through the stricture. The part taken by chronic irritation in the production of cancer may be evidence in this case.

KENNETH MURRAY, M.D.



**RUPTURE OF THE URETHRA:** Hamilton Bailey (Brit. Jour. of Surg., Vol. XV. pp. 370-384). The author quotes Boeckel's dictum, "Every rupture of the urethra, even the slightest, is a potential stricture." The cause of the injury is stereotyped, most often a fall astride a projecting object,—or infrequently a "kick in the crutch."

Four signs lead to a diagnosis of a ruptured bulbous urethra, viz., hemorrhage from the meatus, perineal hematoma, retention of urine, and pain. The magnitude of any one of these signs affords but little clue to the extent of the mucosal tear. Retention of urine is usually due to a reflex spasm of the compressor urethrae. When rupture above the compressor occurs, extravasation into the cellular tissues of the pelvis takes place early. The caudal catheter made to follow along the roof of the urethra is the best method of differentiating between complete and incomplete rupture.

For complete rupture of the urethra, without extravasation, the author favors the method of treatment suggested by Morison, which consists of a preliminary cystotomy, and then through a perineal incision suture the urethral roof with a few catgut stitches. No catheter is used; the perineal wound is lightly packed with gauze and left open. Fourteen days after operation one Lister's sound is gently introduced.

Intrapelvic rupture of the urethra is a more serious condition than the foregoing, and is nearly always associated with a fractured pelvis. Perineal swellings are not the rule. The condition is almost impossible to differentiate from extraperitoneal rupture of the bladder. The passage of a catheter and the withdrawal of a few ounces of extravasated urine from the space of Retzius may lead one to the erroneous conclusion that the catheter is in the bladder. A suprapubic incision opens the cave of Retzius; if the bladder is even moderately distended the lesion must be situated below the vesical sphincter. The immediate treatment is often limited to cystostomy and drainage. The author believes the only indication for the indwelling catheter is complete rupture of the intrapelvic portion of the urethra. Unlike the bulbous portion of the urethra, the membranous part shows but little tendency to stricture formation.

KENNETH MURRAY, M.D.

#### STANDARDIZATION OF EPHEDRINE PREPARATIONS

The A. M. A. Chemical Laboratory, in coöperation with the Council on Pharmacy and Chemistry, has been in considerable measure instrumental in arriving at the highly satisfactory condition that exists with regard to the market supply of this drug in America. The Laboratory studied the problem carefully and tests and standards were elaborated at the time when ephedrine and its compounds were just becoming popular. The standardization of new remedies is one of the most important functions of the Laboratory. Unless the products are standardized, comparable clinical investigations cannot be reported. The first step in the investigation by a therapist of a new remedy is the determination of its chemical composition and purity. (Jour. A. M. A., June 9, 1928, p. 1873.)

#### PEDIATRICS

##### SUPERVISORS:

CHESTER A. ST. VART,  
LA SALLE BLDG., MINNEAPOLIS

ROY N. ANDREWS,  
MANKATO CLINIC, MANKATO

**PREVENTION AND MODIFICATION OF MEASLES WITH ANTIMESLES DIPLOCOCCUS GOAT SERUM:** Archibald L. Hoyne and Silber Peacock, M.D. (Amer. Jour. of Diseases of Children, June, 1928). Under any circumstances, measles is not merely a serious disease because of its possible complications, but one in which the mortality may be high, as shown by hospital reports. The advantage of providing immediate protection for an invalid child cannot be emphasized too strongly. The value of immune goat serum for purposes of this kind has been demonstrated. Human convalescent measles serum should be equally effective.

Tunncliffe's immune goat serum is of undoubted value as a prophylactic against measles when administered early and it may exert a modifying influence on the course of the disease if given at any time during the incubative period.

R. N. ANDREWS, M.D.

**PREVENTION OF POSTURAL DEFORMITIES:** J. Torrance Rugh, M.D. (Arch. of Ped., June, 1928). Function promotes growth and development. Function determines the shape of a bone or part, and when this function is in any way hindered or interfered with, there will be induced a change in the form and structure of the bone to meet the needs of the altered function.

By reason of the position of the tibia over the astragalus, the proportion of body-weight is three-quarters upon the heel and one-quarter upon the ball of the foot. The higher the heel of the shoe, the more weight is placed upon the ball of the foot, which, of course, is not a weight-bearing part. In a very young child learning to walk, the first essential is muscle control.

The secret in the treatment of all potential deformities is prevention by the restoration of balance, and in order to recognize the presence of such potentialities, one must have an eye for symmetry and a knowledge of the normal.

Knee action is much less firm and secure when high heels are worn. This leads to tire and fatigue and in many cases to very faulty carriage of the body in the effort to maintain the erect posture over an unstable foundation.

If a child's back is symmetrical and straight, flexibility is the only quality to be tested. One of the safest rules is that a brace is an aid to an end and must be used as such. It should not hinder but should help. Mechanical devices will be of no assistance unless they fulfill two requirements: first, they must be so constructed as to furnish the desired support or fixation; and second, they must be accurately fitted to the part.

R. N. ANDREWS, M.D.

## EYE, EAR, NOSE AND THROAT

### SUPERVISORS:

VIRGIL J. SCHWARTZ,  
PHYS. & SURG. BLDG., MINNEAPOLIS

E. L. ARMSTRONG,  
205 W. 2nd STREET, DULUTH

**CAUSES OF BLINDNESS IN CHILDREN.** Gordon Norrie (*Acta Ophthalmologica*. Vol. V. Fasc. 4). This study covers a period of twenty-five years in the Royal Danish Institutes for the Blind, and is based upon the records of 578 children, of which 348 were boys and 230 girls. Two large groups of conditions causing blindness are recognized, and each of these is further divided into smaller sections.

1. Congenital Diseases
  - a. Buphthalmus
  - b. Microphthalmus
  - c. Other Developmental Defects
  - d. Retinitis Pigmentosa
  - e. Cataracta Stratiformis
  - f. Syphilis Congenita
2. Diseases Occurring After Birth
  - a. Destruction of the Cornea
  - b. Iridocyclitis and Other Affections of the Inner Eye
  - c. Atrophia Optica
  - d. Lesions

Illegitimacy seems to be a factor, first, because of the frequency of gonorrheal ophthalmia, and second, because of the incidence of xerophthalmia, the latter being explained by the fact that these cases are often foster children whose hygienic and nursing conditions are very poor.

Congenital diseases causing blindness were found in almost one-third of the cases, 184 to be exact. Buphthalmus was found in 32 children and microphthalmus in 35; heredity played no part in these conditions, since no two cases were found in the same family. In complete atrophy of the eyes, however, retinitis pigmentosa and cataracta stratiformis, the influence of heredity was very definite. Thirty-two of the 578 cases had retinitis pigmentosa, and 41 had cataracta stratiformis. Congenital syphilis is not such a frequent cause of blindness as is thought; only 16 such cases were found.

The second large class of cases, consisting of diseases occurring after birth, numbered more than two-thirds of the entire series. Destruction of the cornea was found in 187 children, or about one-third of the total number. Of this group 49 were cases of blennorrhea neonatorum, but only five of these cases developed since 1912, when the use of silver nitrate solution became a law.

Scrofulosis as a cause of destruction of the cornea was found in 13 cases, none of which occurred since 1912. Norrie states of phlyctenular keratitis, which is often called scrofulous eye disease and which is often accompanied by skin sores on the face and scalp, as well as by glandular swelling, that it has nothing to do with scrofulosis but is due only to pediculosis capitis. The eye lesions appear and disappear with the lice.

In 88 children the corneal destruction took place within the first two years of life, and the basic disease in the great majority of these cases was xerophthalmia, due to lack of vitamin A. This was also the probable cause of blindness in 26 cases of serious infectious disease. Lack of whole milk in particular is the cause of xerophthalmia.

Iridocyclitis was the etiological factor in 32 cases, most of these being tuberculous and a few syphilitic.

The cases of optic atrophy form a large group totaling 138 children or about one-fourth of the entire number studied. The cause of the atrophy can not always be determined. Premature ossification of the skull was thought to be the reason for the atrophy in 27 children, and it is interesting to note that of this number 25 were boys and only 2 girls. In another group of 25 cases the atrophy was congenital, occasionally hereditary. Atrophy was due to meningitis in 37 children, and to brain tumor in 10. In the other cases no cause for the atrophy could be found.

Finally, lesions or traumatisms were responsible for blindness in 236 children, of whom 23 had sympathetic ophthalmia which, therefore, could have been avoided if the offending eye had been removed in time.

So far as the prevention of blindness is concerned, in the case of hereditary congenital disease, limitation of offspring is advised although to no avail. Consanguinity is to be avoided, especially in families with retinitis pigmentosa.

Congenital syphilis must be combated by appropriate treatment of the mother during pregnancy and the child immediately after birth. Blennorrhea neonatorum should not exist if the eyes are properly treated at birth. So-called scrofulous diseases of the eye can be dispelled, the author states, by combating head lice. Xerophthalmia can be avoided by including the A vitamins of whole milk in the child's dietary. Cod liver oil is also efficacious. These may also be given during a serious infectious disease. Nothing can be done to prevent many of the intraocular diseases and optic nerve involvements.

If the inflammation in an injured eye (presumably perforated) has not disappeared in 6 weeks it should be removed, because of its almost certain lack of function and the great danger to the other eye. In some cases 6 weeks is too long to wait.

Only congenital diseases and optic atrophy should be frequent causes of blindness in the future. The present large number of corneal destructions should be greatly reduced.

VIRGIL J. SCHWARTZ, M.D.

## BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

**EPIDEMIC ENCEPHALITIS.** Encephalo-Myelitis. Leo M. Crafts, B.L., M.D. 237 pages. Cloth. \$3.50. Boston: The Gorham Press, 1927.

At last a Minnesota neurologist has written a book—something I have had in mind for a quarter of a century, but never accomplished.

The Gorham Press has recently published a most interesting volume on Epidemic Encephalitis by Dr. Leo M. Crafts, of Minneapolis. Most fittingly, he quotes the lines of Swinburne—

"At the door of life, by the gate of breath  
There are worse things waiting for men than death."

which happily describes the most serious of all the acute infections of the central nervous system.

Dr. Crafts' purpose is to present to the profession "in ordered sequence and comprehensive grouping, what has up to the present time been established as accepted knowledge on the character and behavior" of encephalitis. In this, he has happily succeeded. His chapter on history and definition is excellent. He commends the classification of Dr. Lewellys Barker, although all classifications, I believe, are as yet premature.

The chapters on "Symptoms" and "Diagnosis" are exceptionally good and are very informative. The photomicrographs enhance greatly the value of this little volume. His discussion of "Therapy" is an instructive résumé of the empirical treatment of epidemic encephalitis; nothing could more clearly emphasize our helplessness in this disease. Two drugs in this protein therapy are of outstanding value—namely acriflavine and sodium salicylate.

The selected cases drawn from the writer's personal clinical observations are most interesting and instructive and are a valuable addition to the text.

Dr. Crafts' book is unique in that it fills a long-felt want. The experienced neurologist can derive great benefit from its perusal. It is an accurate, concise and illuminative discussion of encephalitis which the medical student and general practitioner have hitherto so sadly needed.

C. EUGENE RIGGS, M.D.

**FOLKLORE OF THE TEETH.** Leo Kanner, M.D. 316 pages. \$4.00. New York: The MacMillan Co., 1928.

Dr. Leo Kanner, a neighbor from Yankton, South Dakota, has here given us a simple but comprehensive compilation of data concerning folklore of the teeth, collected from all ages and races. Teeth have been so prominent and so necessary a part of the human body that they have attracted more than their share of superstition resulting in folklore. It is astonishing to us

to learn of the amount of superstition surrounding dentition, the position of the teeth and the disposal of deciduous teeth.

Practically all of us know that toothache is the most severe form of pain that we are called upon to bear but we may not realize that it has been so considered since the beginning of time. There is a story of a Turk who stopped by the side of a weeping child to offer help, but, when he found that she had been bitten by a snake, passed on, saying, "That's nothing. I thought you had the toothache." Countless remedies; both repulsive and ridiculous, charms, prayers and incantations were invented and resorted to for the cure of this formidable illness. Saint Apollonia was the patroness of toothache and many interesting legends center around the tortures she endured in having her teeth destroyed rather than give up her Christian faith.

One chapter is devoted to the artificial deformation of the teeth, including non-therapeutic removal, pointing, production of prongs and notches, amputation of crowns, artificial prognathism and coloring of teeth. Another chapter deals with popular dental hygiene and yet another with teeth used as tools, instruments, drugs, charms and jewelry. We learn that the toothpick belonged to prehistoric times and that the toothbrush is almost as old.

This book will hold much of interest to all of us who suffer from the presence or the absence of teeth, but it will, of course, have particular interest to the dental profession. It would be a profitable addition to the dentist's waiting room, for reading patients would soon decide that modern dental procedures are necessary, simple and comparatively painless.

MARGARET WARWICK, M.D.

**THE PREVENTION OF PREVENTABLE ORTHOPEDIC DEFECTS, WITH SPECIAL REFERENCE TO THE SPINE AND FEET.** S. C. Woldenberg, B.Sc., M.D., M.Sc., Attending Orthopedist Post Graduate Hospital and Michael Reese Dispensary, Chicago., Ill. 120 pages. Illus. Cloth, \$2.00. Saint Paul: Bruce Publishing Co., 1927.

In the preface to this little volume the author condemns the indiscriminate use of open operations in the treatment of deformities of the bones and joints and is supported by Dr. Ridlon in this assertion. He gives a very terse résumé of the electrical modalities and emphasizes the dangers which result from their indiscriminate use by non-medical practitioners.

This volume is particularly interesting and valuable to the school physician in that it points out the prophylaxis, so far as possible, of orthopedic defects. Of unusual interest is the chapter on posture. The author attacks, in no uncertain terms, physical education as it is evolved in our public schools. Millions of dollars are spent annually in buildings, equipment and personnel in our public school system with decidedly mediocre results. The author urges members of the medical profession to interest themselves to bring this department under medical supervision for humanitarian reasons.

How pitiful has been and still is this department under non-medical direction. The very years when these deformities could be prevented are wasted by an altogether unscientific and irrational system of physical education.

Unusual advances have been made in the last few decades in regard to rickets and with this advance has come a new onus of responsibility on the shoulders of the medical profession. Focal infections and their sequelæ on the bony framework of the body also are considered at some length. Early diagnosis of tuberculosis of the spine and joints is of much importance in the prevention of deformities. A chapter on infantile paralysis emphasizes once again early diagnosis and institution of proper treatment. Considerable space is devoted to ailments of the feet and toes, most of which are preventable. In the words of the author, "The feet are the most faithful servants of the body and as a rule are treated the worst of all."

Volumes have been written on preventive medicine, but this is one of the few books on preventive orthopedic surgery. There is a definite field for many more such books as this; one and the time will soon come when we shall have a more comprehensive volume on this particular subject.

W. A. SAWATZKY, M.D.

**STRABISMUS: ITS ETIOLOGY AND TREATMENT.** Oscar Wilkinson, A.M., M.D., D.Sc., Surgeon-in-Chief, Washington Eye and Ear Hospital, Washington, D. C. 240 pages. Illus. Cloth, \$10.00. St. Louis: C. V. Mosby Co., 1927.

The primary purpose of this book has been to stress the importance of early treatment to the public, the general practitioner and the ophthalmologist. The various theories with regard to etiology of strabismus have been fully discussed, as well as a general classification of the different types. Anatomy and physiology of eye muscles has been taken up in detail.

Treatment has been divided into non-operative and surgical.

Under non-operative treatment the author says that the most important and probably most neglected step is proper education. The old adages that a child can outgrow a strabismus or that later treatment is a simple one must be dealt with forcibly. This need for enlightenment is not only for the parents and teachers but also for the doctor; and no little blame is placed on the latter.

Next, the treatment is grouped under the following heads: (1) constitutional; (2) optical correction; (3) visual training; (4) development of binocular vision or fusion faculty.

Under operative treatment the first thing discussed is "When and Whom to Operate." The opinion of a dozen or more men is given, including Meller, Duane, Posey, etc., and they certainly are at great variance. The author favors early operation at almost any age after thorough and non-surgical treatment for one to six months has proven futile.

Various surgical procedures are well illustrated, including author's operations. Tendon tucking receives little praise. A great variety and more detail of the more recent progress in muscle surgery might not be amiss.

The book is well written, has numerous illustrations and a very good grade of paper has been used. It should stir every ophthalmologist to the need of more widely spread information on that very interesting subject of strabismus.

G. C. WOLD, M.D.

**FISTULA OF THE ANUS AND RECTUM.** Charles J. Drueck, M.D., F.A.C.S., Professor of Rectal Diseases Post Graduate Hospital and Medical School, Chicago. With 66 Original Illustrations. 318 pp. Philadelphia: F. A. Davis Company, 1927.

It seems to be the thing today to present a monograph upon some special disease. The latest in rectal disease is one on "Fistula of the Anus and Rectum" by Charles J. Drueck of Chicago.

The book is well gotten up and is a good résumé of the subject. Chapter V is devoted to the tentative treatment of fistula. The author does not recommend this practice but it does not seem to me that he takes a definite enough stand against it. The percentage of cures from medical treatment is so small that it is scarcely worth attempting.

The chapter on the treatment of tuberculous fistula is not entirely in accord with my own ideas, as I believe the actual cautery is the method of choice. The book contains a great deal of worth-while information and may be read with profit by the proctologist, surgeon and general practitioner.

WALTER A. FANSLER, M.D.

**AMERICAN MEDICINE AND THE PEOPLE'S HEALTH.** An outline with statistical data on the organization of medicine in the United States with special reference to the adjustment of medical service to social and economic change. Harry H. Moore, Public Health Economist, United States Public Health Service; author of Public Health in the United States, etc., with an introduction by the Committee of Five of the Washington Conference on the economic factors affecting the organization of medicine. Cloth, 8 mo., 623 pages. Price, \$5.00. New York: D. Appleton & Co., 1928.

Every physician and layman who is interested in the adjustments of medical service to social and economic changes that are occurring should become conversant with this text.

Mr. Harry H. Moore, who is not a physician but a public health economist in the United States Health Service, has, I believe, given an impartial analysis of the present day organization of medicine. As an economist, Mr. Moore represents the fundamental interest of the public in securing the best possible medical service at the lowest cost; at the same time the inadequacy of compensation and unsatisfactory working



conditions of a large proportion of members of the medical profession are recorded in the text.

On all controversial questions the author presents both sides of the problem. Industrial medicine, status of the free clinic, the teaching dispensary, the pay clinic, group medicine, the individual practice of medicine are all studied; statistics often are given and trends indicated. Organized activities of the medical profession to promote better public relations are also recounted. The local committee on public relations might well study the methods given.

The author believes that the present situation appears to indicate that the following steps will next be taken:

(1) Additional hospitals and clinics will probably be established for persons of moderate means with the aid of the state when necessary.

(2) Preventive medicine will doubtless be greatly extended in private practice and public health work.

(3) Preliminary steps will be taken before long to make available health insurance to all the people, independently of medical service.

(4) Community surveys will be conducted for the purpose of providing a basis for the coördination of unit services into well balanced programs.

Every physician whether or not alarmed at certain trends of medicine today should be informed on the subject matter of this text so that private medicine may deserve and maintain its proper leadership in all those agencies which improve the health and happiness of the people of the United States.

C. A. MCKINLAY, M.D.

**NEW AND NON-OFFICIAL REMEDIES, 1928**, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1928. Cloth. Price, postpaid, \$1.50. Pp. 489, XLIX.

This book is the work of a distinguished organization, the Council on Pharmacy and Chemistry of the American Medical Association, which some twenty years ago was founded to clean out the Augean stables of proprietary medicines. The Council's plan was and has been the publication annually of a book containing descriptions of those unofficial preparations which after careful investigation have been found worthy of recognition and consideration by the medical profession. Such has been the devotion of the Council members, who serve without remuneration, and such the recognition achieved by their work that today the book describes all the new proprietary products which have a scientific base and which give promise of therapeutic usefulness. The physician who best safeguards his own interests as well as those of his patient will give no consideration to any proprietary medicinal agent which is not listed in New and Non-official Remedies.

The book is conveniently arranged for reference: each preparation is classified, and each classification is preceded by an authoritative and up to date discussion of the composition, actions, uses, and dosage of the medicament involved. Annually the book is carefully scrutinized and revised to insure its being in the fore-

front of medical progress. Products that have been admitted are reexamined at stated intervals to determine if they are keeping their promise of therapeutic usefulness; and new products are admitted as they are found acceptable.

Among the more important revisions this year are: the rewriting or recasting of the chapters on Medicinal Foods, Insulin, Arsenic Compounds, and Iron and Iron Compounds; revision of the chapters on Ovary and Parathyroid to make them conform to the results of recent research; and revision of the names and standards of the acriflavine dyes. A noteworthy omission is that of all parathyroid gland preparations designed for oral administration, their lack of efficacy by this route having been conclusively demonstrated.

The following are some of the products which have been recognized during the past year and which are now included in the book: Neonol, a new barbitol compound; Mesurool, a bismuth preparation for use in the treatment of syphilis; Bromural, once omitted from the book, but now reinstated as a result of the manufacturer's limitation of the therapeutic claims; a number of standardized cod liver oils; Ephedrine, an alkaloid with epinephrine-like properties, and its hydrochloride and sulphate salts; Amiodoxyl benzoate, the ammonium salt of orthoiodoxy-benzoic acid, proposed for the treatment of arthritis; Crotales Antitoxin, an antsnakebite serum; several brands of erysipelas streptococcus antitoxin; and Anaërobic Antitoxin, and antitoxic serum for use against gas gangrene.

On account of the careful revisions and the current additions, New and Non-official Remedies is essentially a new book each year, indispensable to the physician who would keep up with the march of therapeutic progress.

#### CLINICAL GYNECOLOGY AND OBSTETRICS.

Rae Thornton LaVake, A.B., M.D., F.A.C.S., Assistant Professor of Obstetrics and Gynecology, University of Minnesota, etc. 281 pages with 35 illustrations. St. Louis: C. V. Mosby Co., 1928.

The value of a reference book to the student or to the clinician depends to a large degree on the purpose of the author in preparing the book. Dr. LaVake's purpose in writing this book is clearly set forth in the opening sentence of the preface. "This volume is designed for the student, graduate or undergraduate, who is organizing his knowledge of countless gynecologic and obstetric methods, facts, and opinions for purposes of practical application." Historic references, theories, hypotheses, tables, bibliographies—all the things with which the encyclopedic works of gynecology and obstetrics have necessarily been encumbered—have been deleted. Only those conditions are dealt with which are of practical importance and only those methods of treatment which are considered of greatest value at the present time have been described.

Perhaps the greatest value of the book is the constant emphasis on the close relation between gynecology and obstetrics. It has grown to be the custom to deal with these two subjects in separate text books as though there were no relation between them. This has led



to a divorcing of obstetrics and gynecology so that obstetrics is most often thought of as mere midwifery and gynecology is most often considered as a branch of surgery. There is a tendency in Great Britain to combine the two and to deal with them in the same volume. Dr. LaVake's book is the first of American books in recent years to so combine the two subjects and to insist on their inter-relation.

Each of the thirty-five chapters deals with a special condition briefly, concisely and in a direct manner. The style of writing is pleasing and forceful. One feels as he reads the book that Dr. LaVake is talking directly to him. This is made effective through the frequent use of the word "you." Lengthy descriptions of the many and various ways of treatment of different conditions is avoided by the author, who presents only those methods that in his experience "have stood the test of time and proved themselves to be the most efficient." While this exposition tends to limit the variety of treatment it is undoubtedly true that one method of therapy consistently pursued will in a vast majority of cases bring better results than sporadic treatment by several methods.

This one small volume is not intended to replace the larger reference works on obstetrics and gynecology but to supplement and to correlate them. The author has accomplished this end and the book will be found to be a worthy addition to the subject.

LEE M. MILES, M.D.

**WHAT YOU SHOULD KNOW ABOUT HEART DISEASE.** Harold E. Pardee, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical School; Assistant Attending Physician, New York Hospital, etc. 120 pages. Price, \$1.50. Philadelphia: Lea & Febiger, 1928.

Dr. Pardee has attempted in this book to do for the cardiac patient what Dr. Joslin and others have done for the diabetic and Dr. Brown for the tuberculous patient—to provide a brief manual of instruction and advice which may enable the intelligent reader suffering from heart disease to understand his disease and to regulate his life in accordance with established principles of treatment.

Such a book will relieve the busy physicians who all too often neglect the education of cardiac patients in matters of daily routine; it will also relieve the cardiac patient who oftentimes forgets or fails to ask of a doctor, obviously pressed for time, innumerable questions concerning his condition. The book deals with the anatomy and physiology of the heart in simple language. It discusses the pathology of various heart afflictions and explains the symptoms produced. There is an admirable discussion of treatment, admirable because it is not too specific but deals in generalities, and because it points out some of the difficulties which the doctor may have in obtaining the expected results. Instructions are not specific enough to permit the patient to attempt regulation of his own treatment.

Sections are devoted to diet with simple tables for reduction of obesity and of salt-free food. Chapters

on the relationship of the cardiac patient to occupations, marriage, pregnancy and surgery are well considered and contain common sense.

The book is small, well printed and easily read. The author has avoided the pitfalls surrounding such an attempt by speaking in non-technical language, by emphasizing the importance of coöperation with the physician and by omitting those facts which should not become common knowledge. Errors in syntax and grammar are not always omitted, which makes the treatise thoroughly American. I believe this work can fill a long-felt want in the field of cardiology.

NORMAN JOHNSON, M.D.

**ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1927.** Cloth. Price, postpaid, \$1.00. Pp. 103. Chicago: American Medical Association, 1928.

The Council on Pharmacy and Chemistry of the American Medical Association annually publishes the reports which tell the reasons for non-acceptance of those products which during the year it has found unworthy of recognition. Some of these reports have been published in abstract in *The Journal*; all are contained in full in the volume which is the subject of the present review. The physician who has learned to ask the manufacturer's "detail" man, "If it is not in New and Non-official Remedies, why is it not?" will find here the answer which that personage will no doubt hesitate to give him. The book shows the practical working out of the principles which the Council's experience has shown to be essential in its fight for rationality in the field of proprietary medicines.

Among the products reported as unacceptable are: Bismogenol, which is bismuth salicylate under a fancy name; Desitin, a complex mixture from Germany; Hexol, a pine oil preparation for which unwarranted claims are made; Warnik's Advocaat, a mixture of potassium arsenite and alcohol in the form of an egg nog marketed without emphasis of the arsenic content in a way likely to lead to harmful and ill advised use by the public; and Solvo Aspirin, another futile attempt to market a solution containing acetyl-salicylic acid rendered soluble by addition of sodium bicarbonate.

A glance at the index shows, however, that these reports do not always deal with articles that have been actually rejected by the Council. Preliminary reports are frequently made on new products which appear promising but for which there is not yet sufficient evidence to warrant inclusion in New and Non-official Remedies. Included in the group this year are: a report on Blueberry Leaf Extract, which gives promise of being useful in the treatment of diabetes; a report on "Plasmoquin," a substitute for quinine in the treatment of malaria brought out in Germany but thus far withheld from the market by the American agent; a report on "Alpha-Lobeline," which has been the subject of many conflicting estimates but which lacks conclusive evidence demonstrating its usefulness; two reports on Ephedrine, announcing standards, evaluating therapeutic usefulness,

and finally announcing the acceptability of the drug and of two of its salts; a report on Bismarsen, a new derivative of arsphenamine containing bismuth and proposed for use in the treatment of syphilis.

Of much current interest is the reprint of the report of Dr. R. A. Hatcher reviewing the literature on the Gwathmey method of colonic anesthesia and evaluating the present standing and usefulness of this method. This report is an outstanding example of the way in which the Council in addition to its other activities aims to contribute to the advance of general medical knowledge.

**X-RAY AND RADIUM IN THE TREATMENT OF DISEASES OF THE SKIN.** George M. MacKee, M.D. 2nd ed., 788 pages. Illus. Cloth, \$10.00. Philadelphia: Lea & Febiger, 1927.

The second edition of MacKee's valuable volume is a great improvement on the excellent first edition. All subjects have been amplified, and the illustrations cannot be surpassed.

The book should be in the hands of every dermatologist and every physician who uses or refers patients for roentgen treatment.

HENRY E. MICHELSON, M.D.

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